FOR RICHER FIELDS

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Pesticide Carry-Over Down 10%, USDA Reports

WASHINGTON — The U.S. Department of Agriculture reported Jan. 13 that carry-over stocks of 26 major pesticidal chemicals in the hands of manufacturers on Sept. 30, 1954, totaled 134,600,000 lb.—a drop of 10% from the 149,500,000 lb. in inventory on the same date a year earlier.

Of the reported 1954 stocks, a total of 50,100,000 lb., or 37%, was in the form of pesticidal dilutions or formulations, mostly ready-to-use. In 1953, 47,600,000 lb., or 32% of the Sept. 30 carry-over, represented formulations.

In making the report, department officials said that over-all stocks of pesticidal materials could be considered "normal," but that inventories of

— See Table on Page 17 —

some individual chemicals varied somewhat, both up and down, from normal.

The report, based on preliminary results of an industry survey undertaken in cooperation with the National Agricultural Chemicals Assn., is believed to represent between 90 and 95% of actual inventories in the U.S. as of Sept. 30, 1954. A total of 141 manufacturers, including most of the major producers, provided information.

Comparative figures are not available, but department officials said that 1952 probably was the high point for pesticidal carry-overs in recent years.

Following the outbreak of war in Korea, pesticide manufacturers increased their production sharply. Some of this stepped-up production reflected the need to keep pace with expanded agricultural output in the U.S., but a good part of it was aimed at an enlarged export market that never quite materialized, USDA said.

Exchange problems, dollar shortages among importing nations and some increase in foreign manufacturing facilities all combined to hold exports to modest levels.

The drop in inventories for September, 1954, is considered a healthy adjustment from the surplus situation of two years earlier, according to USDA. The table on page 17 contains detailed statistics on carry-over of the major chemicals in 1953 and 1954.

Senate Committee Gets Hopeful View Of Farm Problems

Ezra Taft Benson Foresees Gain in Livestock Production

WASHINGTON—Making his first appearance before the Democrat-controlled Senate Agriculture Committee to give a report of the farm situation, Ezra Taft Benson, secretary of agriculture, drew a relatively hopeful view of the problems ahead and made only modest claims for the improvement he saw in his program as it had developed on the farm financial front.

The farm price adjustment which

(Continued on page 8)

American Nitrogen Building Iowa Plant

DAKOTA CITY, IOWA—American Nitrogen Corp., Huntington, W.Va., is building a new plant here for production of fertilizer solutions. Harold Miller, Tekamah, Neb., will manage the plant.

Nitrogen Division Gets Support for Gas Application

OMAHA—Nebraska and Iowa business leaders, farm and labor spokesmen and Nebraska Governor Victor E. Anderson have joined forces to help the Nitrogen Division, Allied Chemical and Dye Corp. obtain the natural gas necessary to expand its Omaha plant.

Representatives of business, farmers, labor and the Nebraska state government met in Omaha recently with Hugo Riemer, president of Allied Chemical's Nitrogen Division, to discuss the over-all problem.

Mr. Riemer asserted his company is ready to "start the $20,000,000

(Continued on page 8)

Inside You'll Find

Canada Timber Spray Project Set; Funds Urged for U.S. Work

— U.S. —

PORTLAND, ORE.—Timber spraying to control insects in western forests is due to step back into the big leagues in 1955—if Congress makes special federal money available. Informed sources here predict more than a million acres will be involved.

The U.S. Forest Service is recommending strongly that two large areas in Oregon and New Mexico, totaling 900,000 acres, be sprayed from the air this summer to control spruce budworm.

If spraying is not done this year, say USFS officials, a considerable amount of tree killing will take place.

Largest project is 600,000 acres in eastern Oregon, taking in parts of four national forests. Planned New

(Continued on page 17)

— CANADA —

MONTREAL — The largest single aerial spraying project ever attempted, probably 2,000,000 acres or more, is scheduled for this spring and summer in the timberlands of eastern Canada.

A fleet of some 80 Canadian and American spray planes will be assembled for the job. They will spread DDT and oil over insect-attacked balsam fir trees in several sections of New Brunswick and Quebec provinces.

This mammoth air attack is being mounted as part of Canada's running battle against the spruce budworm, which threatens vast areas of pulp timber, a vital economic factor in eastern Canada. This will be the fourth consecutive year a large scale aerial spraying project has been undertaken in the region.

In all, approximately a million pounds of DDT will be sprayed on the budworm-infested areas, at the rate of one half pound per acre.

It is understood that in some areas transporting of the chemical to remote bush airfields already has begun. In sections of New Brunswick heavy loads can be transported only in winter, when the woods roads are frozen solid. Spring thaws turn the roads into quagmires.

Contracting agency for the big

(Continued on page 17)

Southern Weed Experts, ESA Study Problems at Meetings in Florida

Research Stressed At Weed Meeting

By HENRY S. FRENCH
Croplife Editorial Staff

ST. PETERSBURG, FLA. — The latest developments in weed control were explored at the Eighth Annual Southern Weed Conference, meeting at the Soreno Hotel here Jan. 17-19. Attending the gathering were some 300 weed researchers, extension and regulatory persons from state and federal experiment stations, chemical and equipment personnel from

(Continued on page 5)

OTHER MEETINGS

In Oregon

Pesticide safety stressed at agricultural chemical applicators short course.—Page 3.

In Colorado

Plant food can make the difference in dry years, fertilizer conference hears.—Page 6.

In Mississippi

The shifting problems of pest control emphasized at insect conference.—Page 8.

Cotton States ESA Names H. C. Young

TAMPA, FLA.—H. C. Young, Entomology Research Branch, U.S. Department of Agriculture, Florala, Ala., was elected chairman of the Cotton States Branch of the Entomological Society of America, Jan. 19.

His election came during the final day of the annual meeting of the organization, convened at the Tampa Terrace Hotel here, Jan. 17-19. About 225 delegates attended this 29th annual meeting of the Cotton States

(Continued on page 4)

Illinois Chemical Firm Gets Charter

LITCHFIELD, ILL. — A charter has been issued to the Chem Pro Products Co. here. The firm plans to manufacture liquid fertilizer, insecticides and other agricultural chemicals. Incorporators are Albert Litzelman, J. H. Combes and Elsworth Henry.

Antibiotic Reported Effective for Control Of Pepper Disease

BELLE GLADE, FLA.—A new antibiotic formula for controlling bacterial spot of pepper was demonstrated at the Agricultural Experiment Station here recently by Dr. R. S. Cox, associate plant pathologist.

The new antibiotic plant spray, Agrimycin, was viewed by Florida vegetable growers gathered here for a special field demonstration of the spray.

"Field results obtained with this antibiotic formula," Dr. Cox said, "are highly effective in controlling one of our worst pepper diseases."

Growers and county agents listened to Dr. Cox's reports of the control achieved in bacterial spots of peppers, a disease that costs the nation's farmers hundreds of thousands of dollars annually.

On the Roswell Harrington farm in Canal Point, where much of the field work is conducted, test results indicated that pepper yield could be doubled with proper application of antibiotic disease controls, Dr. Cox reported.

South Carolina Meetings Scheduled

FLORENCE, S.C. — The South Carolina Plant Food Educational Society, in cooperation with other agricultural agencies, has announced a series of district meetings.

They will be held at Jack Nolen's Cafe, Orangeburg, Jan. 25; the Beacon, Hartsville, Jan. 26; Columbia Hotel, Columbia, Jan. 27, and Franklin Hotel, Spartanburg, Jan. 28.

New Office

NEW YORK—American Potash & Chemical Corp. has announced the removal of its New York office to 99 Park Ave., New York 16. The telephone number is Oxford 7-0544.

MONSANTO SALES SHOW INCREASE

ST. LOUIS — Unaudited sales of Monsanto Chemical Co. and its domestic and Canadian subsidiaries for 1954 amounted to $341,822,557, an increase of seven tenths of one percent over sales for the year 1953.

Unaudited net income for the year 1954 was $23,700,510, which, after provision for preference dividends, is equivalent to $4.39 a common share. Earnings for the year 1953 were equal to $4.88 a common share.

Harry G. Hoehler Joins Witco Chemical

NEW YORK—Witco Chemical Co., 260 Madison Ave., New York, has announced the addition of Harry G. Hoehler to its New York sales staff to cover the Philadelphia and Baltimore sales areas. For 17 years Mr. Hoehler conducted his own chemical sales agency at Wayne, Pa., disposing of the business in 1953. He is a graduate of Pennsylvania State University.

Final Vote Result Leaves Quotas on 1955 Cotton Crop

WASHINGTON — Final results of the national referendum held Dec. 14 on marketing quotas for the 1955 crop of upland cotton show that the percentage of farmers voting favorably remains at 92%, the U.S. Department of Agriculture reported recently.

This is the same as the preliminary percentage announced Dec. 15. The official tabulation shows that of the 346,542 growers who voted, 318,949 favored marketing quotas and 27,593 were opposed.

Official results of the marketing quota referendum on extra long staple cotton, held at the same time as the upland cotton marketing quota referendum, giving the total number of growers voting as 1,193, of which 92.8% favored quotas and 7.2% were opposed to quotas for the 1955 crop. The preliminary tabulation showed 92.7% in favor of quotas on extra long staple cotton.

Since growers have approved marketing quotas on both upland and extra long staple cotton by more than the necessary two-thirds of those voting, the quotas will continue in effect for the 1955 cotton crops.

Colorado Sprayers Schedule Meeting

FORT COLLINS, COLO. — The seventh annual Colorado Aerial Sprayers & Dusters Conference will be held in the Student Union of Colorado A & M College here Feb. 7-8, according to an announcement by Leslie B. Daniels, secretary, Colorado Aerial Sprayers & Dusters Assn. A banquet will be held the evening of Feb. 7.

Richard P. Porter

Richard P. Porter New Vice President Of Larvacide Products

NEW YORK—The board of directors of Larvacide Products, Inc., New York, manufacturer and distributor of industrial and soil fumigants, as well as chemical specialties for agriculture, recently announced the election of Richard P. Porter to the office of vice president.

Mr. Porter will be responsible for the sales of soil fumigants and horticultural specialties presently handled by the company, as well as for the development and addition of new products to the company's line.

Mr. Porter came to Larvacide from the Ethyl Corp. where he was in charge of the field development program for agricultural chemicals. He was formerly associated with Innis, Speiden & Co., as assistant manager of the insecticide department, and with W. Atlee Burpee Co. as manager of quality control.

Prior to entering industry, Mr. Porter for several years was a research plant pathologist at the Virginia State Agricultural Experiment Station. He is a graduate of the University of Connecticut and the Virginia Polytechnic Institute.

Bollworm Control Bill Planned in Missouri

SIKESTON, MO.—A proposal designed to halt a threatened spread of the pink bollworm from Northern Arkansas into Southeast Missouri's cotton country is being prepared for presentation to the Missouri House, J. S. Wallace of Sikeston, chairman of the House Agricultural Committee, disclosed recently.

Mr. Wallace said his group will begin drafting legislation which probably will include provisions for setting up check points on the state line where all incoming cotton trucks, mechanical pickers and transient workers will be examined to make sure they are not carrying the pest into Missouri.

NEW ANCO FACILITIES — Anco Manufacturing & Supply Co. is moving from its location at 217 E. Archer St. in Tulsa to the Flint Steel Corp. site at 21st St. and South Union Ave., according to an announcement recently made by W. M. Wattman, vice president of Anco. The move will provide Anco with increased office, warehouse and shipping facilities. The firm serves the L. P. G. and anhydrous ammonia industries. In addition to the general offices and warehouse in Tulsa, Anco has branches at East St. Louis and Omaha, and a sales office at Minneapolis.

Safety Aspects of Pesticide Use Stressed at Meeting of Oregon Spray Applicators

CORVALLIS, ORE.—The extreme importance of destroying left-over pesticidal materials and their empty containers was emphasized at the fourth annual Oregon Agricultural Chemical Applicators short course here Jan. 11-13. Experts pointed out that applicators may be held liable for injury to persons through careless acts with various chemical preparations.

Four speakers told the more than 150 aerial and ground applicators, suppliers and farmers present that improper disposal of chemical containers can cause serious damage to people and property.

As an illustration of possible results from carelessness, Dr. Ralph Sullivan, Oregon State Board of Health, cited the case of a six-year-old Hood River, Ore., boy killed last year by organic phosphate poisoning. The boy found a glass container, partly full of TEPP, forgotten in a farm field. In opening the jar, the child splashed some of the chemical on his trouser leg.

Enough poison entered the child's body, through skin absorption, to cause death, Dr. Sullivan said. The case attracted nation-wide attention to the dangers of careless use of some types of farm chemicals.

Dr. Sullivan warned applicators themselves, especially pilots of dusting and spraying aircraft, to take more precautions than they have been during loading and applying organic phosphorous insecticides. He said there had been a number of cases of loaders becoming ill in connection with these materials during the 1954 season.

Protective clothing and respirators were termed a "must" for pilots and others working with these pesticides, by Dr. Sullivan and other speakers. In that connection, it was pointed out that respirator filters which might be adequate for protection against DDT and other chlorinated hydrocarbons were frequently useless as protection against TEPP or parathion.

Two OSC scientists, Virgil Freed of the college's agricultural chemistry department and L. C. Terriere of the entomology department, gave the applicators tips and warnings on disposing of chemical containers.

Burning of empty chemical sacks, although the most common method, can also be dangerous, Dr. Freed said. Many of the chemicals now in use, he warned, have a relatively high vapor pressure, and heat of a disposal fire can generate deadly poison fumes which might drift.

Burning of insecticide sacks is probably safe if it is done well away from any populated areas, Dr. Freed said.

Empty herbicide containers are not safe to leave "lying around," even in unpopulated areas, the two scientists pointed out.

"This year again we have had cases of damage from fumes of empty 2,4-D barrels left lying in fields," Dr. Terriere said. Even a very small amount, he said, vaporizing in the hot sun, can drift considerable distances and damage susceptible crops.

Dr. Freed told applicators the safest method of disposing of any empty containers — metal, fibre or paper—is to bury them.

"If you operate from one base or field, get some sort of trenching machine and dig a long hole. Put your containers in and cover them up as you use them. One ditch should last you the entire season—just dig it long enough.

"Any safe way of disposal is going to cost at least some money," he added. "But in the long run it will very probably save you other expenses."

Dr. Terriere suggested the following general procedures in disposing of unused quantities of pesticides:

1. TEPP, parathion and other organic phosphorus compounds — Mix with water and let stand until hydrolysis takes place. Water breaks down the organics into two non-toxic parts.

2. DDT and other chlorinated hydrocarbons—Dig a hole and pour in the chemical. Cover with ordinary agricultural lime and then a layer of dirt. For faster action, use unslaked lime and add water before covering with dirt.

The three-day meeting closed with 1955 applicator licensing examinations, given by Ray Kelso, herbicide control supervisor of the state department of agriculture.

George Kreitzberg, Salem, Ore., was chosen 1955 president of the Oregon aerial applicators association at a business session of the group held during the short course. He succeeds Cal Butler, of Redmond, Ore.

James H. Harriss in New Monsanto Post

ST. LOUIS—James H. Harriss, St. Louis, has been named to the newly created post of distribution manager in Monsanto Chemical Co.'s Purchasing and Traffic Department, it was announced here recently by Howard J. Heffernan, department director. Mr. Harriss, who assumed his new duties Jan. 1, is responsible for managing Monsanto's various sales warehouses in all parts of the country.

Also effective Jan. 1, John F. Brady of St. Louis, was transferred to the Inorganic Chemicals Division to work in connection with shipments to customers, and act as liaison between the division and the central Purchasing and Traffic Department.

THIRD PRINTING

WASHINGTON — The National Fertilizer Assn. has announced that it is planning a third printing of its sticker that stresses that fertilizer is a better bargain than ever. The stickers pont up the fact that, on the basis of what is actually in the bag, fertilizer has risen in cost only 13% since 1935. They are designed for use as envelope stuffers or attached to statements being sent to farmers. The cost is $3.50 per thousand in packages of 500 each.

Wisconsin Dealers, Pacemakers to Meet

MADISON, WIS. — A meeting of Wisconsin lime and fertilizer dealers and the Pacemakers Corn Club has been set for the University of Wisconsin, Jan. 31. Dealers will meet in the morning to hear reports from University of Wisconsin researchers. Pacemakers will hear results of the 1954 program and plans for 1955, along with research reports, at the afternoon session. Outstanding members will receive certificates at a noon luncheon.

INSECT AND PLANT DISEASE NOTES

Florida Reports Armyworm Present

GAINESVILLE, FLA. — Insect pests in this state are active on many kinds of plants during the winter months. Lupine maggot (Hylemya lupini Coq.) in the larval stage was causing damage as high as 80% of lupine plants in some fields at Quincy. The extent of the infestation varies in the different fields. Control measures are not being used to date.

Slender meadow grasshopper (Conocephalus fasciatus (DeGeer)) and slender locust (Leptysma marginicollis (Serville)) averaging two adults per square yard were collected in sweepings of a 50-acre pasture consisting of pangola grass, Para grass and St. Augustine grass and a 20-acre pasture consisting of pangola grass 6½ miles west of Davie. No apparent damage was indicated.

Armyworm (Pseudaletia unipuncta) in the larval stage was infesting a 1,400-acre pangola grass pasture and a 50-acre pasture consisting of pangola, Bermuda, St. Augustine and broom grass 7 miles west of Davie.

Short-winged green locust (Dichromorpha viridis (Scudd.)) and Conocephalus sp. averaging three nymphs per square yard were collected in sweepings of 25 acres of Para grass; Dichromorpha viridis (Scudd.) averaging three nymphs per square yard was collected from eight acres of St. Augustine grass one mile south, 29 acres of St. Augustine grass two miles southwest, and three acres of Zoysia matrella grass two miles southwest of Davie, with no apparent damage indicated.

Thorn bug (Umbonia crassicornis (A. & S.)) in the adult stage was infesting lychee at Osprey. Six thorn bugs were observed on three trees. Pithecellobium tree 20 feet away had a high population before spraying with parathion.

A phycitid (Pococera atramentalis Led.) was infesting an eight-foot loquat tree at Gainesville. Only one plant was examined, and 10 larvae were found.

Citrus red mite (Paratetranychus citri (McG.)) in all stages was infesting citrus and various ornamentals at Gainesville. Population is sufficient in residential planting to require chemical control. Flat-footed ambrosia beetle (Platypus compositus (Say)) in the adult stage averaging 40 strikes per tree was infesting a royal poinciana at Bradenton. Owner is spraying with BHC, three applications at one week intervals. —H. A. Denmark.

Rhode Island Gives 1954 Insect Summary

KINGSTON, R.I. — Insect conditions in the state of Rhode Island for 1954 have been summarized by K. E. Hyland, Jr., who reports on pests of cereal and forage; ornamental and nursery stock; fruit and vegetables and insects affecting livestock and man.

Outbreaks of armyworm (Pseudaletia unipuncta) occurred during the latter part of July and the first of August. These localized outbreaks are considered by some to have been more serious this season than in recent years. Oats, corn, millet and grasses were attacked. In at least one instance, nearly 100% of the larvae were parasitized by at least one species of parasite.

Only one outbreak of fall armyworm (Laphyqma fruqiperda) was noted, this one occurring about the middle of July. The stalk borer (Papaipema nebris) caused some damage to corn plantings during early summer. European corn borer (Pyrausta nubilalis) and corn earworm (Heliothis armigera) were no more abundant than usual. Populations of leafhopper and aphid on forage crops this season were near average.

Heavy infestations of Japanese beetle (Popillia japonica), however, occurred in portions of Newport and Bristol counties where many trees were defoliated severely. In other areas, the beetles were generally no more abundant than in previous years.

Mites were found consistently on evergreens, although less abundant than in previous years. Spruce spider mite (Paratetranychus ununquis) was abundant on arborvitae. Inspection reports indicated that nearly every nursery was infested.

Scale insects in general were no more abundant than usual. The birch leaf miner (Fenusa pusilla) severely infested grey birches throughout the state. Only the first brood was of serious proportions. A very light infestation of the locust leaf miner (Chalepus dorsalis) occurred.

The population of gypsy moth (Porthetria dispar) was reported to be heavier than usual, but no serious defoliation was noted. Eastern tent caterpillar (Malacosoma americanum) was very light.

The American dog tick (Dermacentor variabilis) was very abundant during spring and early summer. This tick was of more concern to sheep raisers than the sheep ked (Melophaqus ovinus). Black-legged tick (Ixodes ricinus scapularis) continues abundant in the fall and winter months principally as a parasite of dogs. A specimen of Lone Star tick (Amblyomma americanum) was collected in Washington County by J. A. Mathewson, State Department of Agriculture.

House flies were abundant during late summer. Fannia sp. was reported causing concern in one locality during July. Several severe infestations of chicken mite (Dermanyssus gallinae) were reported from scattered sections.

Mites, including European red mite (Metatetranychus ulmi) and two-spotted spider mite (Tetranychus bimaculatus) were subnormal in abundance during 1954. An occasional medium to heavy infestation was reported. Of the two, the European red mite was more prevalent. Population of codling moth (Carpocapsa pomonella) was very low, as was population of red-banded leafroller (Argyrotaenia velutinana). Aphids were abundant in a few scattered orchards, but not generally. Apple aphid (Aphis pomi) was generally more abundant than rosy apple aphid (Anuraphis roseus).

Flea beetles, principally potato flea beetle (Epitrix cucumeris), were very abundant during most of the season, being a problem on tomatoes, corn and beans, as well as potatoes. Cucumber beetles, both striped cucumber beetles (Acalymma vittata) and spotted cucumber beetle (Diabrotica undecimpunctata howardi) were generally abundant. The spotted species was particularly abundant later in the summer. The host plants had a particularly long growing season and cucumbers remained green much longer than usual.

Infestations of Mexican bean beetle (Epilachna varivestis) were light except for a few scattered plantings. Colorado potato beetle (Leptinotarsa decemlineata) was not abundant. Mites were not generally abundant. Stalk borer caused considerable damage to tomatoes, potatoes and sweet peppers. Squash bug (Anasa tristis) was relatively abundant in the Kingston area. European corn borer (Pyrausta nubilalis) and corn earworm (Heliothis armigera) populations were no greater than usual. Corn sap beetle (Carpophilus dimidiatus) was very common on sweet corn in areas of Washington County and should be carefully watched in future years.

COTTON STATES ESA

(Continued from page 1)

Branch. Mr. Young succeeds W. G. Bruce, USDA, Gulfport, Miss.

Other officers elected were A. N. Tissot, Agricultural Experiment Station, Gainesville, Fla., vice chairman, and W. G. Eden, Agricultural Experiment Station, Auburn, Ala., who was renamed secretary-treasurer.

The meeting opened with a talk by Dr. Bruce, and remarks by Dr. George C. Decker, Illinois Natural History Survey, Urbana, Ill., president of the Entomological Society of America.

Technical papers covering many phases of entomology, chemical control of agricultural pests and discussions on new pesticidal materials were presented.

Oliver I. Snapp, USDA, Ft. Valley, Ga., told the group about investigations of pests on peaches during 1954, indicating that aldrin was found to be highly effective for 24 to 26 months. Dieldrin and heptachlor were also found to be effective, he said.

"The Influence of Temperature on the Control of Codling Moth and Oriental Fruit Moth on Apples in North Carolina" was the title of a paper by George F. Turnipseed, North Carolina Agricultural Experiment Station, Raleigh, N.C. He said that temperature has a definite effect on the activity of the codling moth and the oriental fruit moth. In western North Carolina temperature not only influences the timing of the applications of spray materials, but also the number of applications which are necessary in a given season.

H. H. Tippins and Lacy L. Hyche, Alabama Polytechnic Institute, Auburn, Ala., presented a paper on control of flower thrips on blackberries. They said that field experiments conducted in 1954 testing the effectiveness of both one and two applications of parathion, malathion, TEPP, and nicotine sulfate against flower thrips, Frankliniella tritici (Fitch), on blackberries. Both parathion and malathion gave significant control with one application being as effective as two applications. TEPP and nicotine sulfate both failed to give adequate control.

Parathion and malathion residues on berries picked four days after application did not exceed 0.5 ppm., they reported.

"The Insect Identification Service of the State Plant Board of Florida," was presented by Howard V. Weems, Jr., State Plant Board of Florida, Gainesville, Fla. He declared that an increasing need for a good insect identification service in Florida has induced the State Plant Board—the plant inspection, quarantine, and plant pest survey organization of Florida—to expand its services of insect identification. "While the basic purpose of this work is to provide a supporting service to the inspection and quarantine departments of the Plant Board, the program is being developed in close cooperation with the U.S. Department of Agriculture, Florida Experiment Stations, Florida Extension Service, and the Florida State Museum, to provide insect determinations, primarily of Florida insects, to all interested organizations and individuals," he said.

An expansion program is underway to develop a comprehensive insect reference collection of Florida insects, to further develop a strong library of taxonomic publications, and to put into effect a new filing system which employs the IBM machine. Routine functions of the Entomology Department are being closely linked with the federally directed Economic Insect Survey, in which the Plant Board is the agent for Florida.

Progress of the Insect Pest Survey in Florida was reported by H. A. Denmark, State Plant Board of Florida, Gainesville, Fla. He explained that the State Plant Board entered into a contract with the U.S. Department of Agriculture January 1954, for the purpose of making continuous surveys of the economic insect pests in Florida. A weekly summary is prepared from the reports submitted by Plant Board personnel, Florida Agricultural Experiment Station entomologists, Florida Agriculture Extension Service, Department of Entomology, University of Florida, Florida Board of Forestry, and private agricultural industries. A copy is forwarded to Washington from which excerpts are taken for publication in the "Cooperative Economic Insect Report." Copies are also sent to all contributors of which there are over 200 to date.

Robert H. Mount and F. S. Arant, Alabama Polytechnic Institute, Auburn, Ala., discussed the effect of high and low gamma BHC and lindane on the cotton aphid. They reported that experiments were conducted to determine the difference in the effectiveness of 3% gamma dust formulated from 15% gamma BHC, 41% gamma BHC, and lindane upon the cotton aphid, Aphis gossypii Glover. Small plots of aphid-infested cotton were dusted at the rate of 20 lb. an acre. Each formulation was tested alone and in mixtures with 5% DDT. The treatments were replicated four times.

Infestation counts were made before treatment and at 24-, 48-, and 96-hour intervals after treatment. All of the formulations gave satisfactory control, and there was very little difference in their effectiveness, the paper said.

"The Effect of Certain Acaracides on Two Species of Spider Mites on Cotton in Alabama," was by R. L. Robertson and F. S. Arant, Alabama Polytechnic Institute, Auburn. They said the weather was extremely dry in Alabama in 1954, and spider mites on cotton were numerous in several localities. The desert mite, Tetranychus desertorum Banks and the strawberry mite, T. atlanticus McG. were the principal species involved.

In replicated experiments, 3% and 5% Aramite, 3% chlorthion, 5% malathion, 3% methyl parathion, and 1% parathion applied as dusts at approximately 20 lb. per acre were more effective in controlling the desert mite than was sulphur.

Sprays were effective when applied at the following rates an acre: Chlorthion 0.5 lb., demeton 0.25 lb., malathion 0.50 lb., methyl parathion 0.25 lb., parathion 0.25 lb., and ovotran 2 lb. The mite infestation on the checks and adjoining untreated areas was apparently reduced by the six-spotted thrips, Scolothrips sexmaculatus (Perg.) feeding upon the mites.

All sprays used against desert mite and Hercules AC-528 were satisfactory in control of the strawberry mite, they said.

"The Effect of Particle Size of the Active Ingredient of DDT Dust on Corn Earworm Control," was discussed in a paper by John W. Wilson and Walter H. Thames, Central Florida and Everglades Experiment Stations, Florida Agricultural Experiment Stations, Sanford and Belle Glade, Fla.

Dusts made up with especially ground DDT having mean surface particle sizes of 4.1, 9.8 and 11.5 microns and a commercial formulation of 5% DDT dust were compared in corn earworm control tests at the Central Florida and Everglades Experiment Stations during the spring growing seasons of 1953 and 1954, they said. The mean surface particle size of the DDT in the commercial formulation was determined to be 20.3

...icrons. Differences between the ...er cent of worm free ears har...ested from plots treated with the ...dusts were not significant.

Lacy L. Hyche and W. G. Eden, ...so of Alabama Polytechnic Insti...ute, described the effect of various ...rmulations and methods of applica...on of certain organic insecticides on ...ireworms attacking sweetpotatoes. ...hey reported the results of experi...ents conducted at three locations in ...labama in 1953-54 to determine the ...ffect of various formulations and ...ethods of application of aldrin, ...ieldrin, heptachlor and lindane on ...ireworms.

Dilute dust and granular formu...ations were applied to the soil both ...s broadcast treatments and insecti...ide-fertilizer mixtures. Emulsifiable ...oncentrates were applied in the ...ransplant water. The rate of appli...ation was 2 lb. technical insecticide ...n acre.

At locations where wireworm in...jury was severe, granular broad...cast applications of the compounds ...tested were slightly but consistent...ly the most effective. Applications ...of emulsions in the transplant wa...ter failed to reduce injury suffi...ciently. Where injury was light all ...treatments were equal in effective...ness, they said.

"Soil Insecticides for Control of ...weetpotato Insects," was discussed ...y C. M. Beckham, Minter Dupree ...nd A. H. Dempsey, Georgia Experi...ment Station, Experiment, Ga.

Soil inhabiting insects frequently ...ause extensive damage by feeding ...nd burrowing in sweetpotatoes. This ...njury lowers the grade and when ...evere, the crop may be almost a ...otal loss. Trimming losses are high ...nd turn out is reduced when the ...amaged potatoes are used for can...ing, they pointed out.

Insecticide-fertilizer mixtures were ...pplied in the drill and bedded on ...ght days before setting the plants. ...wo tests with six replicates in each ...ere conducted. Best results were ...btained with heptachlor, lindane, ...nd BHC. Aldrin and dieldrin were ...ext in order of effectiveness.

"Insecticidal Control of Soil In...abiting Insects Damaging Sweetpo...atoes," was the title of a paper by ... H. Floyd, Louisiana Agricultural ...xperiment Station, Baton Rouge, ...a. He reported that experiments ...ver a period of several years using ...arious insecticides have shown that ...ractically complete control can be ...btained of the various insects re...ponsible for damage to the tubers ...n the ground. Of the chemicals test...d aldrin at 2 lb. tech. an acre has ...iven best results. Practically 100% ...lean potatoes were obtained where ...ldrin was used as compared to al...most total loss in some plots not ...reated.

Residual action of aldrin the 2nd ...season following treatment was ...equally effective as the first season ...applied.

A partial protection from damage ...y the sweetpotato weevil was also ...btained from both aldrin and chlor...ane.

"Insects Which Attack Pine Seed...lings in the Southeast," was dis...ussed by C. F. Speers, U.S.D.A., ...orest Service, Southeastern Forest ...xperiment Station, Asheville, N.C. ...is paper said that the planting of ...reas throughout the South has in...reased tremendously during the ...ast eight years. Unfortunately, for...sters concerned with planting pro...rams have not been aware of the ...nsects which attack seedlings, of the ...elationship between agricultural and ...orstry practices and their effect on ...nsect populations which may later ...ttack planted stock. This paper dis...usses white grubs, pales weevil, ...antucket pine moth and the pine ...ebworm. Present controls are indi...ated and the need for additional ...esearch on these insects was dis...ussed.

SOUTHERN WEED CONFERENCE

(Continued from page 1)

industry, as well as farmers. All were interested in weed control problems in the 13 southern states included in the conference.

"One of the greatest challenges to the field of weed control is the potential increase in agricultural production that may be obtained by developing effective measures to reduce annual weed losses," it was stated by Dr. W. C. Shaw, Southern Weed Conference president, in his address. Dr. Shaw is with the Field Crops Research Branch, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md.

"In a recent preliminary appraisal of losses in agriculture by the USDA," he continued, "it was estimated that the total losses to crops, livestock, forests, fabrics, households and buildings from all insects were 3.6 billion dollars. The annual cost of control was 400 million dollars, making a total of four billion dollars lost annually due to insects."

In the same survey it was estimated that the total annual losses due to weeds in crops, pastures, rangelands and livestock, were 3.8 billion dollars. To this cost must be added an estimated 1.2 billion dollars for losses due to weeds on forest and non-agricultural lands and for the cost of controlling weeds on agricultural and non-agricultural lands.

"Thus the losses caused by weeds and the cost of control are estimated at a staggering 5 billion dollars annually," he declared.

Dr. Shaw called for more public support of research on weed control. During 1945-54, he said, the USDA appropriated for weed control 1.5 million dollars, while funds for insect control amounted to about 20 times that much during the same period. There is an increasing and continuous need for additional research support in an attempt to reduce the annual losses to farmers, caused by weeds.

Dr. Shaw's remarks were made during the opening of the first general session the afternoon of Jan. 17. Following him, Dr. D. W. Colvard, dean of agriculture, School of Agriculture, North Carolina State College, Raleigh, spoke on the role of the state experiment stations and extension services in developing a weed control program.

Dr. Colvard viewed the situation as a new set of scientific information in its early stages of development—a multi-million or billion dollar job to be done on the farms of the South. It is a real opportunity for the research - extension - industry team to make its mark on the appearance and economy of the South. It is a great opportunity for industrial and educational forces to join hands with each other and with farmers in the colorful parade of useful technology in agriculture.

Summarizing his remarks, Dr. Colvard made the following points:

1. Research and extension efforts in the field of chemical weed control fall within the authorization of the Hatch and Smith-Lever Acts.

2. This represents an area of scientific application to agriculture that is of great economic importance in our southern region.

3. It seems advisable to strengthen research and extension efforts along this line consistent with the development of a proper environment for successful efforts and as funds for support can be provided.

4. This effort involves a team approach. First there should be cooperation between the schools of agriculture, the USDA and industry. Furthermore, interdepartmental cooperation, a balance between basic and applied efforts and a balance and cooperation between research and extension efforts on the campus are efforts basic to production.

5. The problem is of such economic importance and success is important enough to challenge us to move ahead.

6. The imagination and leadership of the workers in the field will mold the future pattern.

Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Assn., Washington, D.C., talked on the effects of legislation and regulation on herbicide research and use.

"The field of herbicide developments," said Mr. Hitchner, "is, in the opinion of many, going to be in a very short time as big, if not bigger, than any other phase of chemical agriculture. This will result in not only reduction in labor and production costs, but will have many economic and social repercussions."

This will lead to proposals for control by legislation and regulation, Mr. Hitchner pointed out. The type of regulation that develops will decide the rate of progress in research and the production and use of these materials. The industry has a public relations and legislative problem which must be met if research, development and the expanded use of herbicides are to continue.

Mr. Hitchner said that one of the problems which the industry faces is the introduction of legislative proposals by those inexperienced in the many complexities of legislative control of agricultural chemicals. Legislation has an impact where herbicides are used for food, on herbicidal research, on individual scientists, and on users.

The industry, he concluded, has a need to develop between itself, fed-

(Continued on page 21)

Role of Fertilizer as Crop Yield Booster in Dry Years Stressed at Colorado Meeting

FORT COLLINS, COLO. — "You can't grow bumper crops in a drouth year . . . but you can make more efficient use of the limited water you do have if soil nutrients are adequate." This statement keynoted the Colorado fertilizer conference held on the Colorado A and M campus here Jan. 10-11.

The conference brought together about 150 representatives of technical and industrial phases of the fertilizer industry. They came primarily to learn what effects, if any, fertilization has on crops grown under poor moisture conditions. Their interest was sparked by several years of below average precipitation in wide areas of the West and Midwest and prospects of another year of below average moisture.

Most talks made at the conference dealt with fertilizer-moisture relationships reported by Colorado A and M scientists.

Dr. Robert S. Whitney, agronomist in soils for Colorado A and M, cited experiments with sugar beets and barley as examples of the value of fertilizers in dry years. The work was conducted on the Colorado A and M agronomy farm. Sugar beets were grown on soil which contained no deficiency of phosphorus or potash. The variables were water and nitrogen fertilizer.

One area received five irrigations containing a total of 24 inches of water. One plot in this area received no nitrogen, one plot nitrogen at the rate of 40 lb. per acre, another at an 80 lb. rate, and the fourth was treated with 160 lb. of nitrogen per acre.

The same nitrogen rates were used in the other areas, but the amount of water was reduced. Three irrigations totaling 16 inches of moisture were added in the second area and only 11 inches were added to the third in two irrigations. The latter amount is considered well below the normal requirement for sugar beet production. Moisture stored in the soil at seeding time was good in all plots.

Here are the results:

Pounds nitrogen per acre	0	40	80	160
Inches water added	tons per acre produced			
11	12.2	13.3	16.1	14.8
16	13.9	17.0	17.4	18.7
24	17.4	19.5	19.4	21.0

Most significant result of the experiments is the fact that the addition of fertilizer increased the yield in every plot. The average maximum increase was approximately 4 tons per acre.

The effect of moisture is also demonstrated. A consistent increase in yield resulted from additional water. Obviously, the highest yields were obtained when water and fertilizer were both present in adequate amounts. In drouth years, the amount of available water may not be a controllable factor. Fertilizer is, it was stated.

Faced with the possibility of a dry year, a farmer could add 80 lb. nitrogen for less than $10 an acre. If water supplies remained low, his yield might be expected to reach 14 to 16 tons per acre. Had he not fertilized, his yield would have been about 12 tons.

At last year's prices the 2 to 4 extra tons of beets would have meant $25 to $50. It would have cost less than ten dollars for the fertilizer to get that extra production. Had available moisture been higher than expected, the producer might have raised his total production to 17 to 19 tons. The experiment shows the profitable role of adequate fertilizer at all rates of water applied.

Tests of the same nature were made with barley. Water applied varied from 5 to 13 inches. Nitrogen had been added to the land the year previously when a crop of sugar beets had been grown on the same plots.

A five to six bushel per acre increase resulted in comparing the unfertilized plots to those that had received nitrogen at the 160 lb. rate. This increase remained fairly constant, even on the dry plots, again illustrating the value of nitrogen application in dry years as well as wet ones.

Dr. Whitney summarized the experiments by saying that the effect of fertilizers can be beneficial provided there is enough moisture present to prevent crop failure. Much of the fertilizer not used by the crop in dry years will be left in the soil for the following year. Maximum effects from fertilizer are obtained when moisture is plentiful, but soil fertility should be kept at sufficient levels under all conditions, he said.

Francis E. Best, Spencer Chemical Co., guest speaker at an evening banquet, supported Dr. Whitney's conclusions by saying that seed, labor and water are all lost with the failure of a crop, but the fertilizer added will have carryover value the following year.

Forrest Willhite, Colorado A and M agronomist stationed at Grand Junction, Colo., reported that the addition of nitrogen to mountain meadows tends to increase the efficiency of moisture available in dry years. Tests conducted on four mountain meadows which were not irrigated last year indicated that the application of 160 lb. nitrogen per acre boosted hay yields to almost the same levels as those realized during years of normal precipitation when no fertilizer is used.

Phosphate tests were explained by C. O. Scott, assistant agronomist at Colorado A and M and Rodney Tucker, extension agronomist for the Colorado Extension Service. Mr. Scott reported on experiments with Rhenania-type phosphates which can be manufactured in converted cement plants. Mr. Tucker reported that an average of tests in 20 Colorado counties showed that adding from 130 to 200 lb. phosphate per acre brought about an average of almost one ton per acre increase over unfertilized plots.

New York Museum Gets Bug Collection

NEW YORK—Some 182,000 specimens of insects collected over the years by the late John Lowell Sperry, amateur entomologist, have been presented to the American Museum of Natural History. It is the largest single collection ever to be given to the museum, officials said.

Not only is it the largest overall collection, say museum heads, but it also contains the largest private collection of the family Geometridae. This family of insects is represented in the gift by some 165,000 specimens.

The specialist in charge of this project is Dr. F. G. Rindge, assistant curator of the museum's department of insects and spiders. His work is expected to make possible better identification of the species of Geometridae, resulting in a "more intelligent control program against the economically important species."

AT COLORADO MEETING—Officers of the Colorado Soil Improvemen Assn. are shown in the top photo discussing fertilization in drouth year during the annual fertilizer conference at Colorado A and M, Jan. 10-11 Left to right are Frank Jasper, Colorado Fuel and Iron Co., Denver, president W. R. Burgess, J. R. Simplot Co., Greeley, Colo., vice president, and R. A Kurland, Phillips Chemical Co., Denver, secretary-treasurer. Below, Dr. Rober Kunkel, professor of horticulture at Colorado A and M College, Francis Bes of the Spencer Chemical Co., and Dr. Robert Whitney, agronomist in soil for the Colorado A and M Experiment Station, left to right, review report on fertilizer use made during the conference.

Gloomicides

We hear that statisticians find that nine out of ten women are knock-kneed. And for years we'd been thinking that statisticians never had any fun!

★

Patty, age 6, reading aloud from her first grade reader, hesitated at the word f-l-o-u-r. To be helpful in the most approved pedagogical manner, her mother explained, "That is what we must have to make cakes and pies and—"

"Oh, yes," said Patty brightly, understanding at once. "A mix!"

★

The automobile motor began to pound and finally stopped. The worried boy friend said to his companion, "I wonder what that knock could be?"

"Maybe," replied the blonde, "it's opportunity."

★

A man asked his friend what had caused a collision. The friend replied, "Two motorists after the same pedestrian."

★

Signs of Life: On a drinking fountain: "Old Faceful." In a state park: "Rest Rooms Ahead. Speed Limit 15 m.p.h." In a courthouse stairway is a sign with an arrow and this message: "To Marriage License Bureau. Watch Your Step." In the window of a steam bath emporium: "We Make Young Colts Out of Old 45's."

★

All a woman needs to be successful are two good lines—one a man can listen to, and the other he can look at.

★

Bartender: A psychiatrist who wears an apron.

★

A home town is the place where people wonder how you got as far as you have.

E. M. Billings

JOINS MACKWIN—W. T. Lemmon sales manager of the Mackwin Co of Winona, Minn., recently announced the appointment of E. M. Billings a central states sales supervisor fo the Mackwin Co. Mr. Billings wil headquarter in Ankeny, Iowa, and will serve Mackwin's agricultura chemical customers in Missouri, Kan sas, Nebraska, Iowa and southeastern South Dakota.

Mosquito Meeting

NEW BRUNSWICK, N.J. — The New Jersey Mosquito Extermination Assn. will hold its 42nd annual meeting at the Hotel Haddon Hall, At lantic City, March 9-11, according to Dr. Bailey B. Pepper, chairman o the Department of Entomology, Rutgers University. Dr. Pepper, who is secretary of the Association, said tha the program will include about 30 reports of scientific and general in terest relating to mosquitoes and their control. Other bothersome in sects, such as greenhead flies, also will come in for some attention.

Use of Herbicides on Field, Horticultural Crops Described At Northeast Weed Meeting

By WALTER C. SMITH
Croplife Editorial Staff

NEW YORK — Technical papers presented at the recent Northeastern Weed Control Conference, in addition to those reported previously in Croplife (issues of Jan. 10 and 17, page 1) included studies on results with various herbicides in corn, potatoes, alfalfa and horticultural crops.

The conference, held in New York Jan. 5-7, attracted a record attendance of more than 510 registrants. A further report of the conference follows.

Weed control experiments in onions were described by several workers. M. J. Papai, W. Baran and E. R. Marshall of G.L.F. Soil Building Service, Ithaca, N.Y., discussed herbicides on muck-grown onions; pre-emergence and post-emergence applications in set onions were topics covered by C. J. Noll and Martin L. Odland, Pennsylvania State University, State College; and S. Dallyn, R. L. Sawyer, T. H. Haliburton and R. D. Sief of the Long Island Vegetable Research Farm, Riverhead, N.Y., presented results of weed control in sweet Spanish onions.

CMU, PDU and DMU gave good weed control in muck-grown onions with no injury when applied pre-emergence, and T-596 was said to show promise as a selective herbicide for weed control in this crop.

Set onion tests indicated the best treatments considering weed control, yield and application cost were CIPC at four lb. an acre and KOCN at 16 lb. in 100 gal. an acre applied post-emergence. Pre-emergence application of CIPC followed by post-emergence application of KOCN gave equally good yield with better weed control than KOCN alone.

The most satisfactory pre-emergence treatments in the sweet Spanish onion experiments were CMU at ⅔ lb. an acre and CIPC at 3 lb. an acre. The most promising post-emergence treatments were directed sprays of CMU or CIPC applied six to eight weeks before harvest.

Applications of CIPC at 4 lb. an acre had no harmful effect on growth and vigor of onions in Canadian tests.

Additional papers presented at the Jan. 6 afternoon session of horticultural crops involved weed control and chemical defoliation of beans.

Guenter Loeffler of Cornell University indicated environment and application rate studies on bean pre-emergence weed control with CIPC suggested temperature at time of application of CIPC is an important factor in red kidney bean injury. Fresh weight of harvested treated beans was greatest from plots receiving morning applications of CIPC at 4 lb. an acre.

Chemicals other than sodium pentachlorophenate which show promise as weed controls in lima beans are 2,4-dichlorophenoxy propionic acid, CIPC, MCP propionic acid, monosodium cyanamid and organic phosphate. This was reported by C. J. Noll and M. L. Odland of Pennsylvania State University.

Endothal and Shed-A-Leaf showed better defoliation and less desiccation in tests with red kidney beans conducted by R. Tang of Cornell University. Interaction between pressure and gallonage was noted as significant, with low gallonage or high pressure causing more desiccation than high gallonage or low pressure. Mature plants responded more satisfactorily than immature plants.

In vineyard tests it was apparent that CMU can be used safely at about 5 lb. an acre as a row application in early spring. Higher rates were recommended only on a trial basis. Fall applications of CIPC at 5 to 8 lb. an acre controlled quackgrass, June grass and Canadian bluegrass in raspberries with no apparent injury to the crop and resulted in 30 to 40% increases in fruit yield. Fall application of CIPC was also effective in controlling common chickweed in strawberries at rates of 1.5 to 3.4 lb. an acre. Two lb. an acre appeared to be safe.

C. J. Noll and M. L. Odland reported endothal to be the most promising treatment for weeding in beets. In a paper not presented orally, a pre-emergence application was recommended when there is sufficient moisture in the soil to encourage weed germination.

Crag-1 was the only one of three hormonal sprays which gave good weed control and yields in potatoes comparable to check plots, according to a report by R. L. Sawyer and S. L. Dallyn presented at the Jan. 7 session on potatoes. Natrin and Crag-1 outgrew vine damage by all three sprays quickly, the paper stated. Premerge was considered the best of all materials tested with yield, weed counts, potato vine tolerance rating and specific gravity taken into consideration.

Further research with CMU, TCA and other new chemicals for control of northern nutgrass in potato plantings is needed before definite recommendations can be formulated, advised R. S. Bell and E. J. Bannister, Jr., Rhode Island Agricultural Experiment Station, Kingston. Over-all sprays of Dalapon, Crag-1, Sesin, Natrin and Alanap-2 had as good yields as directed sprays according to reports furnished by R. L. Sawyer, S. L. Dallyn and R. D. Seif of the Long Island Vegetable Research Farm. A slight depressing effect on yield was noticed in using these chemicals.

Summarizing work done at the New Jersey Agricultural Experiment Station, R. J. Aldrich and J. C. Campbell said both CMU and Sesin applied after last cultivation in potato fields showed promise for control of late germinating weeds. Pre-emergence application of CMU at ½ lb. an acre

(Continued on page 19)

First Mississippi Insect Conference Hears Talks on Pesticide Progress, Problems

STATE COLLEGE, MISS. — The first annual Mississippi Insect Control Conference, held at Mississippi State College here Jan. 6-7, attracted more than 200 entomologists, insecticide dealers and applicators from the southeastern states. The conference featured talks by entomological authorities and panel discussions.

Subjects of panel discussions included small grain and pasture insects and their control, livestock insects and controls, vegetable and fruit insects and controls, and household insects and their control. Other panels dealt with regulatory actions by state authorities, relations between research, extension and industry, application of insecticides, methods and problems, insect control failures and cotton insects and controls.

Dr. E. F. Knipling, in charge of entomology research branch, U.S. Department of Agriculture, Washington. D.C., pointed out that entomology problems do not remain static. When new crops are introduced and new areas are opened to production, new insect problems immediately arise.

The new insect problems call for new methods of treatment and new chemicals, he said.

Dr. Knipling said, "in my opinion, possibilities are almost unlimited among organic compounds for materials that are highly effective against insect pests, yet of low hazard to warm-blooded animals."

In summarizing a panel discussion on livestock parasites and controls, Glen Vanderford, associate county agent at Greenville, Miss., said, "first we must recognize our pest problems, then we must convince the farmer that it is more economical to treat for control than it is to just let the insects take their toll.

"In using insecticides, farmers, agricultural workers and applicators must follow instructions on materials to use, the recommended diluted strength of materials, when and how to apply the material, and they must have the equipment necessary to do the job. They must also continue to expand entomology research."

L. C. Murphree of Coahoma Chemical Co., at Clarksdale, Miss., headed a panel on small grain insects. This panel brought out that light traps are valuable in predicting outbreaks of worms in small grains and legumes.

Moths, attracted by the light, are counted. This moth count allows agricultural workers and farmers to know 10 days to two weeks in advance of a worm outbreak and this permits them to be ready with insecticide and applicators when the worms appear, it was stated.

Discussing problems encountered in applications of insecticides, Dr. M. E. Merkl of the entomology research branch USDA, at the Delta Branch Experiment Station at Stoneville, Miss., named too high tractor speeds, incorrect pressure and too little care as the major problems encountered in spray applications of insecticide. Problems encountered in dust applications included poor timing and unfavorable weather.

Norman Downey, Hercules Powder Co., Birmingham, Ala., was moderator of a panel on the relations between research, extension and industry. This panel pointed out that industry and individual insecticide dealers are vitally interested in the welfare of the farmer and they should cooperate fully with educational outlets in furnishing information on proper methods of control.

Poor planning and unfavorable weather were named as major causes of insect control failures by a panel presided over by J. F. White of Shell Chemical Co., Jackson.

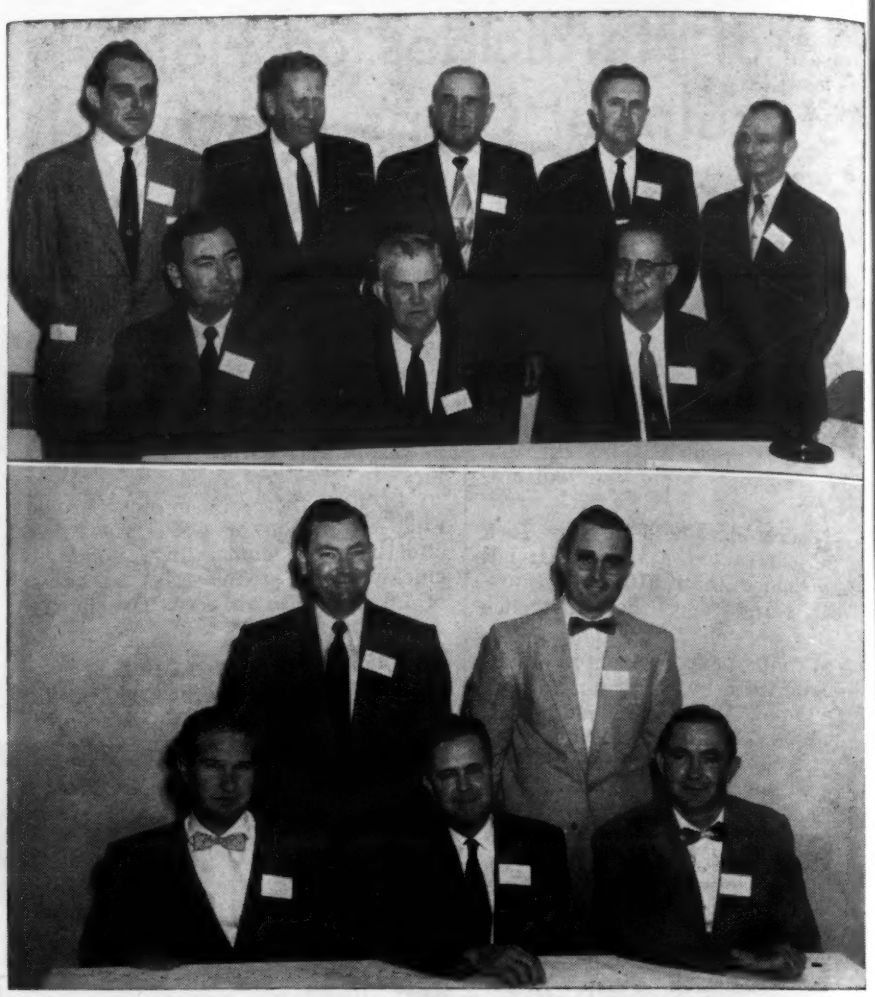
Extremely high temperatures and high winds reduced the effectiveness of both dust and spray applications last summer, it was pointed out. The high temperatures reduced the lasting residual effects of the spray insecticides; the high winds prevented proper dust applications.

Unscrupulous applicators, especially "fly-by-night" airplane dusters and sprayers, were named as another cause of insect control failures. It was recommended that to correct this problem, farmers should hire only known pilots or companies, either those residing within the state or regularly doing business within the state, not the "here today, gone tomorrow" type.

Si Corley, Mississippi commissioner of agriculture, headed a panel devoted to the regulatory programs for controlling and preventing the spread of the pink bollworm, white fringed beetle and sweetpotato weevil, and for registration of insecticides.

Herman Johnston, Gulfport, Miss., representing the Division of Forest Insect Research, summarized the federal research program related to forest insects.

Officers to head the Mississippi Entomological Assn. for 1955 are L. C. Murphree, Coahoma Chemical Co., Clarksdale, president; W. R. Smith, Shell Chemical Co., Jackson, vice president, and Roy Bailey, General Chemical Division, Greenville, secretary. Directors are Dr. M. E. Merkl of USDA at Stoneville, David Young of the Mississippi State Plant Board at Leland, and J. C. Redd of Redd Pest Control, Jackson.



MISSISSIPPI INSECT MEETING — Panel moderators and speakers at the first insect control conference to be held at Mississippi State College are shown in the top photo. They are, seated from left, Dr. M. E. Merkl, entomology research branch, Stoneville Branch Experiment Station, Stoneville, Miss.; Si Corley, Mississippi commissioner of agriculture; A. H. Jackson, Superior Termite Co., Jackson, substituting for J. C. Redd, Redd Pest Control, Jackson. Standing are, Norman Downey of Hercules Powder Co., Birmingham; J. F. White, Shell Chemical Co., Jackson; Glen Vanderford, associate county agent at Greenville, L. C. Murphree, Coahoma Chemical Co., Clarksdale, and H. R. Johnston, Gulfport, representing the Division of Forest Insect Research. Below are officers of the Mississippi entomological association for 1955. Seated, from left are, W. R. Smith, Shell Chemical Co., Jackson,vice president; L. C. Murphree, Coahoma Chemical Co., Clarksdale, president, and Roy Bailey, General Chemical Division, Greenville, secretary. Standing are directors, Dr. M. E. Merkl of the U.S. Department of Agriculture at Stoneville, and David Young, State Plant Board at Leland. Director not pictured is J. C. Redd, Redd Pest Control, Jackson.

NITROGEN DIVISION

(Continued from page 1)

expansion program the same day 12,000,000 cubic feet of firm gas is assured."

Allied Chemical's Omaha plant at the present time receives 12,000,000 cubic feet of gas daily on an interruptible basis from Northern Natural Gas Co. Northern has made application for 12,000,000 cubic feet of firm gas for Allied Chemical. Federal Power Commission hearings on the application are underway at the present time in Washington.

Governor Anderson said he had already sent a telegram to Washington urging approval of the application of firm gas for Allied and "if necessary he would go to Washington."

Elmer Dowell, General Organizer for the American Federation of Labor, declared "his organization is behind the application and will use every power at our command to help Allied and the area."

Frank Fogarty, president of the Omaha Chamber of Commerce, and chairman of the meeting, concluded by urging those present to "address a message to the FPC in Washington urging favorable consideration of Northern's application."

NAC Office to Move

WASHINGTON—The office of the National Agricultural Chemicals Assn. will be moved, effective Feb. 1, to Associations Bldg., Suite 603-04, 1145 19th St. N.W., Washington. The present address is 910 17th St. N.W. The telephone number of the association will remain STerling 3-2833.

FARM PROBLEMS

(Continued from page 1)

he asserted had started two years before he took office had about run its course.

He called attention of the Senate committee to the hazards of absolute judgment as to statistics. For example, he noted that while total farm income had declined nearly 25% from 1947 to 1954, the farm population had declined about 20%.

To him this indicates that per capita income of farmers had declined markedly less than total farm income. In the last seven years, he said, per capita income has declined about 7%, but after taking into account income received by farm people from non-farm sources the realized per capita income of these farm people from all sources had actually increased by 6%.

Mr. Benson's statement to the Senate committee was little more than a re-hash of his earlier statements to individual farm groups. But, of more than passing importance to the plant food industry were his forecasts concerning livestock production and requirements in the years ahead which have great bearing on the transitional period of shifting millions of acres of farm lands from field crops to pasture.

Mr. Benson sees a temporary leveling off of cattle numbers at this time with indicated price stability immediately ahead. However, he noted the growing appetite of the American people for beef. In 1951 per capita consumption was 55 lb., and in 1954 the nation consumed 79 lb. of beef per person.

He said, "The amazing rate of our population growth emphasizes the need for increased production of beef in the long run. Our population today approaches 164 million people. Reliable estimates place this figure around 185 million people in 1965 and well over 200 million people by 1975.

"If we have 185 million people by 1965, we will need between 100-105 million cattle to maintain beef consumption near current rates. If we have 200 million people by 1975, we will need 110 million head of beef cattle to maintain per capita consumption rates."

That is the Benson estimate. It is provoking to the company management that plans far into the future as it plots investment and considers sales potentials.

Previously CSS officials had told Croplife that next year's loan program would carry in it some form of loan differentials for wheat to halt the excessive production of this grain for pure loan purposes.

Clover Aphid Damages Alfalfa

EL PASO, TEXAS—Lower Valley farmers report that in spite of freezing weather, the yellow clover aphid is still causing damage to alfalfa fields.

The aphid made an appearance in the summer and seems to have spread more generally throughout the Upper Rio Grande Valley, as well as in parts of New Mexico.

A recent report from the Pecos Valley in New Mexico stated the diverted cotton acreage might not be planted to alfalfa because of the presence of yellow clover aphids.

Special Retail Section

Better Selling

Richer Fields for Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

New England Looks Back on Hurricane Year

BOSTON — New England has marked down 1954 as "the year of the big winds" in its history books. It has gone down in meteorological history as one of the roughest years ever for the area. It was full of shattered weather bureau records and three bad-acting hurricanes.

Hurricanes Carol, Edna and Hazel, characterized as "three ugly belles," caused the most destruction to crops and farms in New England's 300 year old history.

Carol hit on Aug. 31, blasted eastern Massachusetts with high winds and hurled high, flooding tides across the shore lines. The apple, pear and peach crops were ruined. Truck farmers were practically put out of business. More than a million families were left without lights or refrigeration and 68 persons died.

Weather experts said it couldn't happen again. But, 11 days later, it did. Hurricane Edna came barreling up along the same course and took care of a few crops that Carol had missed. Edna became a meteorological freak, splitting into a storm with two eyes in the vicinity of Hyannis. The two centers were plainly seen on radar scopes. Edna did the worst of her damage in Maine.

On Oct. 15, along came Hazel. She gave New England a break, cutting inland at South Carolina and cutting a path of death and destruction across Virginia, Pennsylvania and western New York state into Canada.

The year started off with a long wet rainy spring. The rain washed out and ruined spring crops throughout southern New England.

Looking at 1954 in retrospect, the consensus was that it was undoubtedly the worst year for crops in history, for added to the rains and the hurricanes was a tremendous breakout of army worms which spread all over the six-state region in August.

Mallinckrodt Chemical Makes Additional Nematode Study Grant

KINGSTON, R.I. — An additional grant of $10,000 has been received by the University of Rhode Island's Agricultural Experiment Station for research on chemicals capable of killing nematodes, prevalent and destructive parasites to which most plants are susceptible and which are causing great losses to U.S. farmers and horticulturists. The grant is from the Mallinckrodt Chemical Works of St. Louis, Mo.

Last year the company gave the University a grant of $8,200 for this work. The research has been so productive in new and useful information that the nematode destroying chemicals discovered are being patented.

Dr. A. C. Tarjan, assistant research professor of plant pathology and entomology, is in charge of the research project.

The Mallinckrodt grant will aid in enlarging the studies being conducted at the University of Rhode Island nematode laboratory. Currently Dr. Pen Ching Cheo and Ben H. Kantack are full-time scientists associated with the program.

Every Day's a Holiday

The best sources of merchandising ideas and materials can be found in the retailer's own back acres. For the consistently successful advertiser every day's a holiday.

EDITOR'S NOTE: Paul Dunn, assistant manager, sales promotion department, Fleischmann Division, Standard Brands, Inc., speaking at recent meetings for retail sales personnel in Milwaukee and Chicago, used the intriguing title, "Every Day's a Holiday", to introduce his talk on merchandising. Excerpts from his talk are contained in the accompanying article.

"Merchandising" is a word that can stand a little definition. We all use it, but we may have different meanings in mind. And that's only natural because according to the dictionary, to "merchandise" means to "buy and sell"—which is certainly broad enough to cover pretty nearly everything a retail merchant does.

In any case, by this definition "merchandising" includes advertising, sales promotion and publicity and most anything else you can think of. And those activities, in turn, break down to a hundred-and-one different and specific merchandising projects —a few of which are listed here:

Point of purchase display:
- Window, island and counter displays.
- Posters, counter cards, banners, etc.

Promotional stunts:
- Open house campaigns.
- Personal appearances.
- Production demonstrations.
- Special sales.
- Music, lights, miscellaneous attention getters.

Publicity:
- Newsworthy stories for newspapers, TV and radio.

Advertising:
- Newspaper space.
- Radio and TV time.
- Direct mail circulars.
- Bag stuffers.
- Billboards, car cards, truck posters.

Suggestion Selling:
- Teaser signs, lapel pins, armbands.
- Sales training program.

Now it's obvious that it wouldn't be feasible for any one retailer to use all of these suggestions. This is a sort of cafeteria counter from which each one can choose the activities best suited to his particular type of operation, his neighborhood and his pocketbook.

As a matter of fact, having this list of merchandising possibilities is really putting the cart before the horse, because it's a lot more practical to figure out what's good for your business before you start moving down the cafeteria line than afterwards. We all know the trouble we have with cafeterias when our eyes get bigger than our stomachs.

And how do we figure out a well-balanced merchandising diet beforehand? Let's see if these suggestions don't make good sense.

1. Analyze your market.
2. Check your competition and fellow retailers.
3. Select product to be merchandised.
4. Set up an adequate budget.

Check Competition and Fellow Retailers

One of the best ways to find out what will or will not sell is to check with and on your fellow retailers. This does not mean concentrating exclusively on just your own retail competitors. It means studying the merchandising activities of all your fellow retailers, especially the big downtown department stores.

This observation will pay off in a number of ways, besides giving you an idea of what the public in your community will go for. You can get a whole file full of ideas on how to display the products you decide to merchandise by watching what goes on in department store windows, alone.

Set Up an Adequate Budget

Although there are no hard-and-fast rules as to the amount or percentage of money a retailer should spend for merchandising, it just doesn't make good sense to pick a figure out of the air. Or, worse yet, start out with no budget at all and then call the whole thing off because it costs too much.

One way to arrive at some sort of logical budget is to try to visualize an outline of the proposed campaign, as far as possible, and get a rough estimate of its cost. Another method is to set aside a certain percentage of gross sales—starting with a very conservative percentage — and then gradually increasing it as results warrant.

Your Merchandising "Campaign"

I have been consistently referring to merchandising "campaigns," not one-shot ads for one-day special events. I emphasize the word "campaign" because to me it means a planned and coordinated program that starts where the products are produced and gradually develops into the advertisements or commercials that are printed in the local newspapers and broadcast from the local radio or TV stations.

A very successful department store merchandiser I know always started his discussions on the budget subject with the question: "Who pays for advertising?"

That's a good question. Because the way he had it figured the guy who pays for the advertising that's done in any particular line, in any particular community, is the guy who doesn't do any.

He explained it this way:

Discounting the creation of a "new market for goods," and considering advertising in the sense of two or more merchants competing for the same trade . . . the one who advertised should, all things being equal, take trade away from the merchant not advertising. That is, his advertising bills may very well be paid for by the non-advertiser. In other words, my loss is your gain, so to speak. A lot can be said for this "theory" one way or the other. I imagine that those of you who advertise consistently don't see it quite that way.

(Continued on page 16)

SHOP TALK OVER THE COUNTER FOR THE DEALER

By EMMET J. HOFFMAN
Merchandising Editor

The objection many dealers have to the use of direct mail advertising is its comparatively higher cost when compared with local newspaper advertising.

The use of reprints of newspaper advertisements as direct mail pieces offers the dealer one method of cutting down costs for this form of advertising. Established dealers who have built up a list of their best customers over the years might consider using reprints one or more times to get an idea of results obtainable.

A reprint is merely a reproduction of the newspaper ad on low-cost or quality paper stock, depending on the impression the dealer wants to convey to his customers.

Publishers will usually quote a reduced price for reprints because the time and cost of setting up an ad are already covered in the cost of the newspaper ad. The use of low-cost paper stock will also help keep costs at a minimum.

One technique which dealers may use to give their customers on their "extra special" list the advance information about coming sales, special offers, discounts, etc., is to schedule an ad containing this information, have the publisher run off the reprints and mail them out to the special customer list before the ad appears in the newspaper. In this manner special customers may get several days' advance notice and if you make mention of this fact in your direct mail piece it will have the added effect of making those customers feel that you consider them a select group.

Several days after the reprint is mailed out the ad can be scheduled in the local newspaper.

Data Sheet

A number of large companies have prepared an employees' data sheet

(Continued on page 11)

Doing Business With Oscar & Pat

When Oscar Schoenfeld came home from work to an excellent supper of sauerkraut, pigs knuckle, apple cake and coffee, he noticed that Minnie, his wife, was filled with some sort of inner excitement. But he did not ask her if anything was the matter, for he felt that such things could wait until after mealtime.

Usually, with women, they got excited over trifling things, Oscar thought. The main work of the world was done by business men, especially those who managed money and cut costs. They were the ones who kept the world from going to pot.

At the table he sampled the sauerkraut and the pigs knuckle, then frowned a little. Minnie, ever watchful of her spouse, saw the expression on his face. "What's the matter, Oscar, doesn't it taste right?"

"Ach, it's pretty good," Oscar conceded, "but it isn't like that sauerkraut and pigs knuckle I tasted in that restaurant in Des Moines. Do I have to take the time to drive to Des Moines with you and buy you a dinner, too, so you can see how I like it?"

A trace of tears appeared on Minnie's thin face. "Oh, I'm sorry, Oscar. I tried so hard. You seem so crabby these days. N— nothing I ever do seems to suit you. Is— is it so hard working with McGillicuddy?"

Oscar chewed hard on some gristle, because he did not want to waste it. "Hard?" he echoed. "Such a disregard for money he has. Sometimes I think it would be easier for me just to sell out and work for somebody else. He drives me crazy. If I so much as turn my head, then he spends money fast enough to make me dizzy."

"But we eat and so does Pat and his family," said Minnie. "So some of the things he does must work out right." It was the wrong thing to say, as she realized, but it had just slipped out.

"Sure we eat," he snapped, holding a fork in the air. "Thanks to me, we eat. If I didn't watch the pennies, take the discounts, throw cold water on his crazy ideas, we wouldn't eat I can tell you that. The sheriff would be closing our place. It would be bankrupt—ach, such worry for me."

He chewed on some delicious meat around the pig knuckle, then went on. "And if he would only do what I tell him, we could all eat much better, you, me and his family. We could have more money in the bank, more stocks and bonds, yessirree.

"Maybe even one of us could become a director in the bank. That would be something to write home to the old country about. A director in the bank. Me, that is, not Pat. Ha, ha, he would break the bank if they let him sit on the board."

"Oscar," said Minnie timidly, the excitement shining in her eyes. "Would you like to have an idea that maybe would be just as good as some of Pat's? To show him you could come up with selling ideas, too?"

Oscar's eyes lighted. "I certainly would," he snapped. "I'm a good businessman, I know, except I can't think up selling ideas. I wish that just once I could get a dandy idea. I would show that Irisher. He thinks he's the only one who can do things like that."

Minnie hesitantly brought out several Christmas cards she had kept hidden under the table cloth. "Oscar," she said, "do you remember this Christmas card we got from the Muellers after they moved to Florida last year—this one with the samples of beach sand stapled onto the card in cellophane bags?"

"I never did like that Ted Mueller," said Oscar chewing on the pigs knuckle. "He was always shooting off his mouth. Always jumping from one job to another. He won't stay in Florida very long, I'll bet you. And if you asked him he couldn't raise $1,000 without stealing it. He never saved a nickel in his life."

Oscar glanced carelessly at the attractive Christmas card which Mueller and his wife had sent them. It showed two pairs of beach sandals, one a man's, the other a woman's. The copy said, "Sand in Our Shoes. Wish you were here, too, at Christmas." And stapled to the card was that cute little cellophane packet of beach sand.

"Oscar," said Minnie, her seldom shining eyes, now shining as she sought to please her stern lord and

master. "Oscar, suppose you sent farmers in the area a piece of direct mail, with fertilizer samples stapled to a letter? One could be fertilizer with an insecticide mixture in it, and one sample could be without. Both on the same letter. You could ask farmers to come in and buy fertilizer now and talk over needs with you and Pat."

Oscar was so surprised that he put down his apple cake without taking another bite. A smile appeared on his face, a face which was not used to much smiling. His grey eyes lighted with a warmness that made him almost like a little boy. Minnie glowed under this facet of Oscar's personality and her heart filled with a great happiness that she had been able to evoke such a response in him.

"It's a good idea," Oscar glowed. "Ach, it would make Pat sit up and take notice. And I think it would make the farmers buy fertilizer. They would not throw away the samples—and they would think about getting more to go with it. It would—" Suddenly his face clouded and the light went out of his eyes.

"Minnie," he almost thundered, "that would not be my idea. Ach, it would be yours, and I'll bet Pat would know it, too." He shoved back his chair and got to his feet.

"After this, you stick to your cooking and keeping house. I will earn the money and run that part of the family, just like I have always done—yes. Ideas—poof. Somebody's got to hold them down, so there's money left to pay wages and taxes and things like that."

And Oscar went down in the basement to fix the coal fire, while Minnie just put her head down on her folded arms. She knew at last that unless Oscar could come up with an idea of his own along merchandising lines, that he was doomed to fret about it the rest of his days. "Yes, mamma," Minnie murmured through her tears, "you were right. I married a very stubborn man. But he will never let me starve."

JOINS STATION

BURLINGTON, VT.—James Glendon Sykes of Brownsville started his duties as assistant agricultural economist for the Vermont Agricultural Experiment Station recently.

OVER THE COUNTER

(Continued from page 9)

to list such essential facts about the enterprise, as its size, products, plants, locations and other details. The sheet (or card) is made available to each employee so that he may be informed about his company, to improve company-employee relations as well as make him an enlightened ambassador of good will among his fellow townsmen for his firm. No doubt information such as is listed on a data card often can soften a belligerent viewpoint toward a company and correct popular fallacies.

Such an idea, it appears, has possibilities for the farm chemicals dealer. Instead of devoting such a data sheet to listing company information, it could carry facts and information about the dealer's fertilizer, pesticides and other products.

The data sheet might be of billfold size or larger. The billfold size has been found to be popular among employees of Omar, Inc., large Omaha bakery, which lists on it such information as number of employees, founding of company, number of plants, officers, sales, quantity of raw materials used in a year, etc.

The farm chemicals dealer has a wealth of ready information that not only his own employees would find useful when selling, but will appeal to the customer. Here are some facts which would make a data sheet an ideal direct mail piece:

Where to send soil samples for testing.

Variety of fertilizer stocked; ratios.

Suggested list of products for controlling weeds and insects common to the dealer's area.

A crop rotation plan for six years as suggested by the county agent.

Suggestions for handling and storage of fertilizer, when discounts are available, and application facilities, if any.

Price quotations.

A slogan such as, "Anytime a crop or animal is sold, nutrients from the soil are sold."

Name, address and telephone number prominently displayed in prominent type.

Dealers who consider direct mail their best method of advertising are convinced that its slightly added cost is more than compensated by the flexibility and originality permitted in making up direct mail pieces.

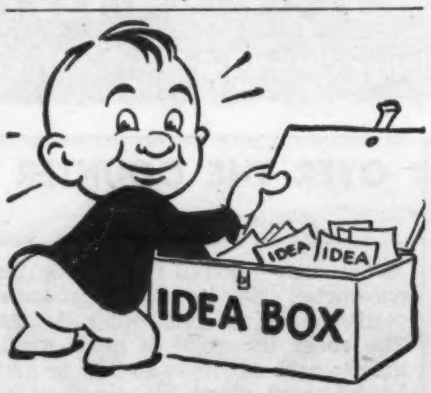
Farm Insurance Costs In New England Hiked

BOSTON — The walloping that New England got from hurricanes Carol and Edna is costing farmers, purchasing extended insurance coverage protecting their homes against windstorm loss, a rate increase averaging as much as 150% in four New England states.

The new rates went into effect in Massachusetts, Rhode Island, Connecticut and Maine and are traceable, according to the New England Fire Insurance Rating Assn. that fixed the rates, to the belting from the hurricanes.

RETIRED CHEMIST DIES

BLACKSBURG, VA. — Henry H. Hill, retired chemist of the Virginia Agricultural Experiment Station died Dec. 24 at this home here. His association with Virginia Polytechnic Institute and the Experiment Station date back more than a half century, to when he became a student at the school in 1900. He joined the staff of the agricultural chemistry department in 1907.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6196—Bag Valve

A newly designed inner sleeve valve for multiwall paper fertilizer bags is being introduced by the Bemis Bro. Bag Co. The "Mr. Little" sleeve valve, named for its inventors, is distinguished by the patterned creases in the valve sleeve and the design of the sleeve itself. It functions in much the same manner as a check valve in a water pipe, which permits the water to flow freely in one direction but not in the other. A company report claims that "It practically eliminates leakage and gives maximum sifting protection." The valve's fast action on the packing spout keeps the product out of the valve pocket, which reduces the chance of moisture getting into the bag through the "wick" action of hygroscopic products, it is claimed. To secure more complete details check No. 6196 on the coupon and mail it.

No. 6197—Brochure

The Diamond Alkali Co. has prepared a 16-page brochure depicting the contributions made by the company's chemicals to agriculture and other industries. The booklet, called "15 Portraits in Print," contains 15 selected full-page, four color advertisements published by the company in recent issues of magazines. Interpreted in words and pictures are the diverse ways in which the company's chemicals are helping industries. Check No. 6197 on the coupon, send it to this publication and a copy of the brochure will be mailed without charge.

No. 6198—Fungicide Booklet

A new booklet describing the orchard fungicide, called Phygon-XL, for treating apple-scab, blossom blight, brown rot and cherry leaf spot, has been published by Naugatuck Chemical, Division of U.S. Rubber Co. The booklet, titled No. 32, contains information about Phygon formulations, dust application on fruits such as apples, cherries, peaches, prunes and plums and spray applications on these same fruits. General information on handling the product, its composition and advantages are also included. Check No. 6198 on the coupon, clip and mail it to receive the booklet.

No. 6194—Catalog on Mixers

The Rapids Machinery Co. has recently released a two color descriptive brochure covering its line of fertilizer mixers and accessory equipment. Featured in the brochure are the firm's heavy duty industrial mixer and other types of mixers and a detailed illustration explaining the mixing and blending action of the Marion mixers. The balance of the brochure contains information and illustrations of the small batch mixer, elevator, finisher, and lists other available accessories for the fertilizer manufacturer. Copies are available on request. Check No. 6194 on the coupon and mail it to this newspaper to obtain the catalog.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted here to help keep retail dealers on rotational circulation informed of new industry products, literature and services.

No. 6195—Catalog

A complete catalog of equipment and supplies needed in the operation of anhydrous ammonia bulk stations and distribution points has been issued by the Pasley Manufacturing & Distributing Co. Nearly a hundred items are described and illustrated in detail in the 50-page booklet. The catalog also contains a handy NH_3 safety section which includes (1) properties, (2) vapor pressure facts, (3) safety precautions and (4) chemical properties of ammonia at various temperatures. For a copy of this catalog, please check No. 6195 on the coupon and drop it in the mail.

No. 6192—Weed Killer

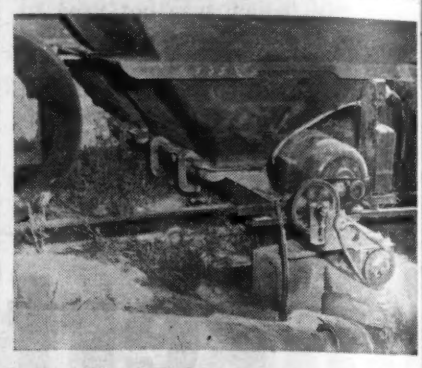
A new service bulletin on the borate weed killer, called by the trade name, Tronabor, has been issued by American Potash & Chemical Corp. in connection with the product's use under asphaltic paving in such cases as airports, highways, parking areas, playgrounds and other similar applications. The new service bulletin augments information on Tronabor contained in a previously-issued bulletin describing its uses in oil fields, along railroad rights-of-way, along fence lines and other farm and industrial applications. The bulletin describes the product as a non-poisonous, noncorrosive borate weed killer that permanently sterilizes soil beneath a paved surface. Copies of either service bulletin can be obtained by checking No. 6192 on the coupon and dropping it in the mail.

No. 6189—Liquid Fertilizer Wagons

Prior Products, Inc., has prepared a brochure on its Ranger line of liquid fertilizer farm wagons. The brochure states that "through the use of the Linco level load axles it was possible to design these Ranger wagons with an extra low center of gravity . . . permitting easy access to operating valves and gauges . . . spring cushioning to eliminate shock and twist, important in preventing tank 'seam rupturing.'" There are three applications to choose from in the level load design and one application less the level load feature, but with spring loaded fifth wheel. Secure the brochure by checking No. 6189 on the coupon and mailing it to this newspaper.

No. 6193—Conveyor

A new conveyor, the Over-Track Unloader, is being manufactured by the Midstate Machinery Co. It is being used to unload bulk fertilizer, feed and other materials being shipped in covered hopper cars. Company spokesman said one feature is that no hole has to be dug under the track, thus eliminating any water hazard. Also, this unloader makes



it possible for the operator to spot a car and unload it anywhere he chooses, it is claimed. The photo shows the unit emptying a covered hopper car of rock phosphate. The P51 Unloader is inserted between the railroad tracks and the hoppers of the railroad car and fastened to the car hoppers by means of flexible canvas connections. A dust-tight operation is claimed. The capacity of the P51 is 30 tons per hour of rock phosphate and other materials weighing 90 lb. per cubic foot. Complete information is available by checking No. 6193 on the coupon and mailing it to this newspaper.

No. 5055—Grain Fumigant

A folder describing its grain fumigant, Lethogas, has been prepared by the Parsons Chemical Works. Entitled "Facts and Data on Parsons Lethogas," the folder tells how the product works as a fumigant for grain weevil and certain other insects. The product forms a gas upon exposure to air, destroys by contact and gas fumes and is not a fire hazard, it is claimed. The product is sold in 5-gal., 30-gal. and 55-gal. drums for use in larger structures and in ½-gal., 1-gal. and 5-gal. cans for farm use. Facts about Kilane residual spray, an insecticide spray, are also included in the folder. Methods for the hand in hand use of Lethogas and Kilane to control weevils are outlined. To secure the folder check No. 5055 on the coupon and drop it in the mail.

No. 5045—Packaging Bulletin

The Triangle Package Machinery Co. announces the availability of a six page bulletin, "Profitable Solution to Your Package Filling Problems." The bulletin describes the firm's line of Elec-Tri-Pak net weighing and filling machines and lists the advantages of using a unit to do many of the packaging jobs now done by hand. Six models, from the automatic, one-scale model A1C to the three-scale model A3C are described in the bulletin. Copies of the bulletin may be obtained by checking No. 6045 on the coupon and mailing it to this publication.

No. 6187—Cherry Leaf Spot Control

Control of cherry leaf spot with Crag Fruit Fungicide 341 (aglyodin solution) is the subject of a new six-page pamphlet released by Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp. The pamphlet discusses methods of applying Crag glyodin solution and lists suggested spray schedules, compatibility data, and the costs of

Send me information on the items marked:

- ☐ No. 5044—Batching System
- ☐ No. 5045—Bulletin
- ☐ No. 5055—Fumigant
- ☐ No. 6187—Leaf Spot Control
- ☐ No. 6189—Wagons
- ☐ No. 6190—Folder
- ☐ No.6192—Weed Killer
- ☐ No. 6193—Conveyor
- ☐ No. 6194—Mixer Catalog
- ☐ No. 6195—Anhydrous Catalog
- ☐ No. 6196—Bag Valve
- ☐ No. 6197—Brochure
- ☐ No. 6198—Fungicide Booklet

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS PERMIT No. 2 (Sec. 34.9, P. L. & R.) MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

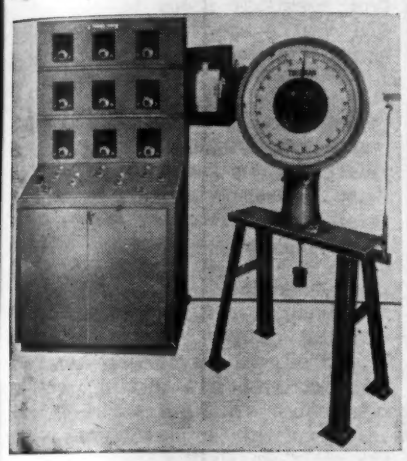
P. O. Box 67,

Reader Service Dept. Minneapolis 1, Minn.

using this organic fungicide. Copies of this new pamphlet (Form 8419) and additional information are available by checking No. 6187 on the coupon and mailing it to this newspaper.

No. 5044—Batching System

A new electronic batching system is now available for the continuous process industries, according to a recent announcement by the scale division of the Thurman Machine Co. The system, called the Thurma-tronic electronic batching system, is adaptable to either accumulative or consecutive weighing. Controls may be set to weigh one batch or for completely automatic continuous batching. In addition, controls may also



be set to weigh any specific number of batches. Thus, all materials in any formula can be automatically weighed and transferred from storage bins to mixers and processing machinery without delays, the company claims. All new or existing plants can be equipped with this batching system, it is stated. The system permits a batching cycle to be completed in a matter of seconds, it is claimed by company officials. Full details on this batching system and any special accessories, such as strip-chart recorders, one turn dials, etc., may be obtained by checking No. 5044 on the coupon and dropping it in the mail.

No. 6190—Range Fertilizer Folder

Balfour, Guthrie & Co., Ltd., has issued a new folder titled, "A Report to California Ranchers—$16.99 Average Increase in Profit Per Acre," which is available without charge. Case histories of demonstrations on 13 California ranches in nine counties are included in the booklet. The folder states that range fertilization produced "four times more beef per acre, plus 6-8 weeks earlier range readiness." The company's Elephant Brand fertilizer was used in the demonstrations. Secure the folder by checking No. 6190 on the coupon and mailing it to this newspaper.

Construction in West Virginia, Pennsylvania Surveyed

WASHINGTON—The chemical industry completed $48.8 million in new construction in Pennsylvania during the past 12 months and will add another $54 million during the next three years, according to a survey made public recently by the Manufacturing Chemists' Assn.

Expenditures for Pennsylvania reported in the survey include $13.5 million for agricultural chemicals and $1.3 million for sulfur and sulfuric acid.

The chemical industry completed $36.4 million in new construction projects in West Virginia during the past year and will add another $38 million during the next three years.

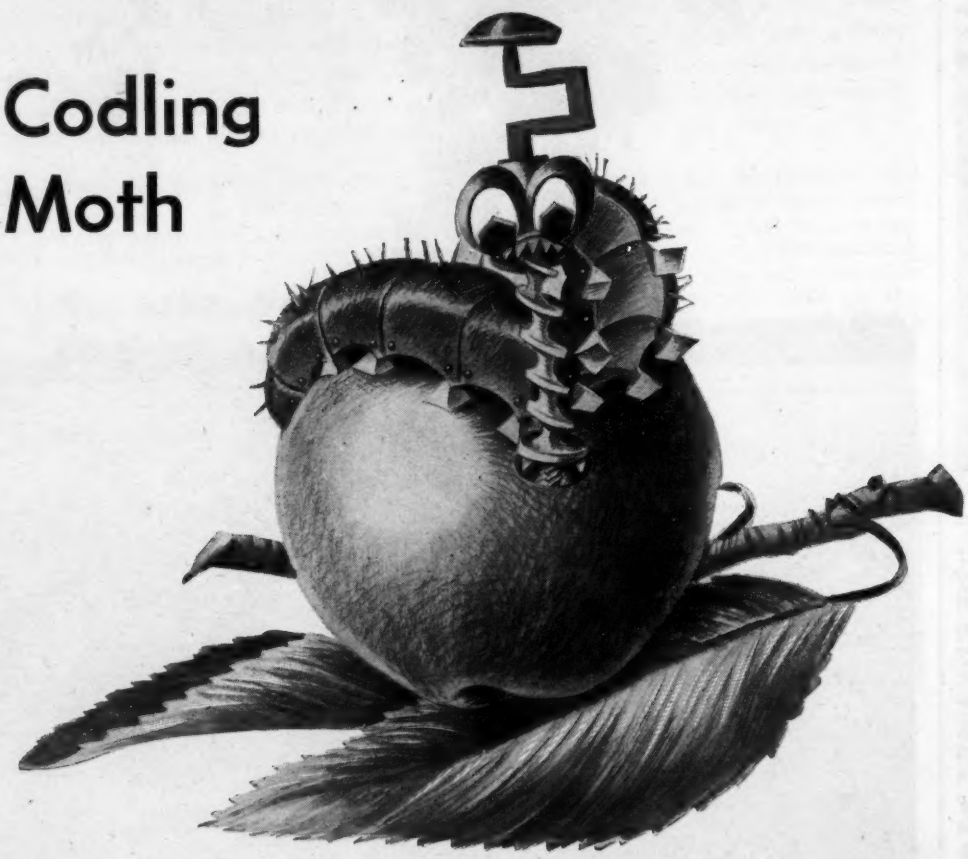
Expenditures for West Virginia include $14 million for agricultural chemicals and $1.2 million for sulfur and sulfuric acid.

Better Selling
Richer Sales Fields for Dealers

BUG OF THE WEEK

Mr. Dealer--Cut out this page for your bulletin board

Codling Moth



How to Identify

The codling moth is a dirty-white or pinkish caterpillar or worm frequently found in apples. Its distribution is all over the United States. In some sections it is called the appleworm.

Life History of Codling Moth

The worms pass the winter in cocoons in crevices under the bark and in other protected places, usually on or beneath the tree. The moths begin to appear about the time apple trees bloom and some moths are present most of the remainder of the growing season. The tiny white eggs are usually laid on leaves near fruit or on the fruit. The first worms normally begin to enter the small apples 3 to 4 weeks after the blossom petals have fallen. The number of generations in a season ranges from one (with a small part of a second) in the northern apple-growing areas, to three nearly complete generations (and a part of a fourth) in the southernmost producing areas.

Damage Done by Codling Moth

Although this pest is usually associated with damage to apples, it also attacks pears, quinces, English walnuts and occasionally other fruits. In apples, it causes the familiar worm holes on the sides and blossom ends of the fruit. The tunnels go completely to the core. These holes are often filled with dark-colored masses, coarse brown or black pellets which sometimes project out of the hole. Such apples are, of course, of small value and the value of fruit thus damaged runs into hundreds of thousands of dollars each year.

Control of Codling Moth

Since this insect burrows inside the fruit, proper timing of application of insecticides is of utmost importance. The first application should be made just after the blossom petals have fallen, according to USDA information. Recommendations for subsequent cover sprays vary from 5-7 days after the first spray, to three weeks; and the second cover spray from 10 days to five weeks. With the pest being active in all parts of the country, recommendations are not the same everywhere. However, most schedules call for use of 50% DDT wettable powder, at the rate of 2 lb. per 100 gal. water; lead arsenate, 3 lb. per 100 gal. water, plus an equal amount of hydrated lime. DDT and lead arsenate may be used in combination with other insecticides and fungicides needed to control other insects and diseases of apples. It is advisable to consult with state experiment stations or county agents for accurate local information.

Drawing of codling moth furnished Croplife through courtesy of E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

FARM SERVICE DATA
Extension Station Reports

The "yardstick" of a pasture's value is the forage and the pounds of beef or milk per acre a farmer gets.

Some agronomists say that milk production per acre could be doubled by the use of more fertilizer and better grazing methods. They say the goal could even be set at 10 tons of milk per acre.

The advantage of getting more milk or meat per acre from pasture or hay is that as the yield goes up, the per unit cost of production goes down. This can help farmers meet the present cost-price squeeze.

Top quality pasture depends on three factors: (1) A high soil fertility level backed up by the use of nitrogen, phosphate and potash fertilizer when seedings are made, plus regular top-dressings to keep the pasture's legume population high; (2) The use of well adapted seed from strains that are winter-hardy and disease-resistant; (3) Good management which rotates the grazing and permits harvests when the legumes' feeding value is high.

★

How long will an insecticide persist in the soil after application? Is it likely to hamper growth of crops if it remains too long? These were among the questions tackled by scientists at the Connecticut Agricultural Experiment Station at New Haven. In experimenting with lindane, Dr. C. L. W. Swanson, F. C. Thorp and Dr. R. B. Friend found that fine-textured soils hold much more lindane and hold it longer than coarse ones.

Sand, they found, retained practically no lindane; silt held moderate amounts and clay retained more of the chemical than any other type tested.

In fine-particled soils, the insecticide vaporized more slowly, thus making it less available for insect-killing purposes and also making it remain in the soil for longer periods.

This suggests that it may be necessary to use smaller amounts of insecticides like lindane in sandy soils than in soils of finer texture, because much loss of the insecticide vapors would be absorbed by the sand compared to the clay. It would also be expected that this sort of insecticide would produce greater residual effects in fine soils than in coarse-textured ones.

At the time these tests were started, lindane was the most promising new soil insecticide, but the principles developed in these studies can be applied to chlordane, heptachlor, aldrin and other new soil insecticides which apparently do not taint root crops.

★

Peach trees can be sprayed for control of leaf curl during the next season any time after the leaves drop, according to the Cornell University Experiment Station here.

One spray of Fermate, Bordeaux mixture, liquid-lime sulphur, or one of the Dinitro sprays, such as Elgetol or dry mix DN 2, will prevent infection of next year's leaves by this troublesome disease, the station said.

★

Four approaches to the problem of blue mold, the most dread disease of Connecticut shade-grown tobacco are being tried by the Connecticut Agricultural Experiment Station. All aimed at reducing the cost of control and making it more efficient, the four lines of research are described in the latest issue of the Station's journal, "Frontiers of Plant Science."

The article was written by Dr. Gordon Taylor, assistant to the director, who is in charge of the station's Windsor Tobacco Laboratory. He lists the four phases of blue mold research as (1) development of resistant tobacco strains, (2) a search for new fungicides, (3) chemotherapy, or control of the disease by chemical compounds acting inside the plant and (4) improved methods of predicting when blue mold is likely to become dangerous during a given season.

Dr. Taylor points out that blue mold reaches outbreak proportions about one year in every ten, when losses in the Connecticut Valley may amount to more than a million dollars. At present, the best known protection is to keep the leaves covered with a fungicide at all times so that any blue mold spores landing on the leaf will be killed before they can enter the leaf tissue.

This sounds easy, Dr. Taylor says, but the tobacco plant grows very rapidly and additional fungicide must be applied every four days.

★

Premature dropping of Italian prunes in western New York orchards has been traced to virus infection. Reduced yields experienced by many growers are now believed due to virus rather than malnutrition, poor soil drainage, pollination failure, or other growth factors.

Cornell plant scientists at the Experiment Station at Geneva and the College of Agriculture at Ithaca have been studying the causes of unsatisfactory prune crops in the western part of New York for the past several years. They are now convinced that a virus which produces a characteristic leaf mottling also reduces fruit set and increases fruit dropping.

Better Selling

Richer Sales Fields for Dealers

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on rotational circulation up to date on industry happenings.

Croplife's issue of Jan. 17 carried stories about new plants in the east and midwest. Northern Chemical Industries completed plans for a $9 million anhydrous ammonia plant at Searsport, Maine; and U.S. Industrial Chemicals Co. announced plans to dedicate its new $7 million plant at Tuscola, Ill. on Jan. 21.

More than 500 attended the Northeastern Weed Control Conference in New York. John Van Geluwe, GLF Soil-Building Service, Ithaca, N.Y., was named president of the group for 1955. . . . The pesticide trade may benefit from new emphasis on grain sanitation, John Cipperly, Croplife's Washington reporter said. Use of the provisions of the Miller Bill will help in this regard, since residual tolerances may now be set.

Grace Chemical Co. formally dedicated its $20 million ammonia-urea plant at Memphis, Tenn. Jan. 6. Plant had been on stream since middle of December. . . . Standard Oil Co. of Ohio named H. H. Tucker and H. J. Coleman to new posts in its new Lima, Ohio, project. The firm is building a new $17,000,000 petrochemical plant for production of anhydrous ammonia, nitrate solutions, urea and nitric acid.

Future weed control progress will be made more difficult as problems become more demanding for specificity, the Northeastern Weed Control Conference in New York was told. . . . Mid-South Chemical Co., Memphis, announced plans for a $1 million anhydrous ammonia terminal in the Memphis harbor.

Progress on several fronts was reported in the Jan. 10 issue of Croplife in use of antibiotics for control of fire blight in orchards.

In its preliminary report on fertilizer consumption in the U.S. for the fiscal year ending June 30, 1954, the U.S. Department of Agriculture reported that total tonnage was down 2.3% from that used in 1952-53, but consumption of primary plant nutrients showed a gain of 3.6%. Total consumption of fertilizer was listed as being 22,875,000 tons which was 538,000 less than that reported in the previous fertilizer year.

Croplife's Washington correspondent, John Cipperly, says that USDA may eventually join in a cooperative venture with private banking institutions to make loans to farmers to help over transition period from field crop production to that of livestock. . . . He also reported that no major farm legislation changes are expected to take place during the sessions of 84th Congress.

U.S. production of superphosphate for October was reported to be 18% over the previous month and 4% more than the figure reported for the corresponding month of 1953. . . . Pennsylvania Salt Mfg. Co. of Washington opened a new office at Aurora, Ill., to serve 26 northern states. Charles G. Whinfrey, Jr. is in charge.

Dr. R. H. Wellman was appointed manager of the Agricultural Chemicals Division of Carbide & Carbon Chemicals Co., New York. . . . A record number of pesticide registrations, 11,368, was recorded in California during the 1953-54 period. These registrations were made by 947 companies.

Grace Chemical Co. began production of anhydrous ammonia at its Memphis plant in December and shipped its first tank car of the material to Swift & Co., Chicago.

U.S. Department of Agriculture revised its interpretations on the warning, caution and antidote statements required to appear on labels of economic poisons (pesticides) including herbicides, rodenticides and insecticides. . . . Crop production for 1954 listed as the fifth largest on record, despite acreage restrictions on several important crops and drouth conditions over much of the nation.

Fertilizer clinic in Baton Rouge, La. stresses more profit an acre through use of more plant foods. . . . The country of Greece was granted a procurement authorization of a million dollars for purchase of nitrogenous fertilizers. . . . Production records in the sulfur industry were broken in 1954 with an over-all output of 6,600,000 long tons.

Hercules Powder Co., Wilmington, Del. reorganized its Naval Stores Department. Three new divisions were formed, to be headed by Richard T. Yates, H. M. Wendle and Donald H. Sheffield. . . . Spencer Chemical Co. named Harold E. Bingham to position of acting director of product sales. . . . S. B. Penick & Co., New York, appointed Frank Seeland manager of its Insecticide Division.

A new association to be known as the "National Nitrogen Solution Assn." was formed by group of midwestern dealers. Officers are: Wayne R. Johnson, Shenandoah, Ia., pres.; Bill Abel, Tarkio, Mo., treasurer; and John White, Auburn, Neb., secretary.

Kansas State College conference held at Manhattan pointed out that fertilizing wheat is the best and easiest method to increase yields and income. This was said to be true particularly in the eastern portion of the state. . . . An atomic energy organization, to be known as "Radiation Applications, Inc." was formed with headquarters in New York. Part of its activities will be directed toward agriculture.

A new movie, "The Big Test," produced in sound and color by The National Fertilizer Association, was unveiled to the public for the first time on Dec. 10 at the Statler Hotel in Washington. . . . The third National Agricultural Credit Conference of the American Bankers Assn., meeting in Memphis, Tenn., expressed confidence in American farming for 1955. One speaker declared that the farm economy is in "a healthy state" and that its prospects for the future are good.

EVERY DAY'S A HOLIDAY

(Continued from page 9)

Getting back to our merchandising "campaign," it should be noted that although the actual advertising, via newspaper, radio or whatever, is usually uppermost in the mind of the retailer, it comes last in this list of steps to be taken:

1. **The "right" product.**
2. **The "right" price.**
3. **The "right" packaging.**
4. **The "right" sales training preparation.**
5. **The "right" window and store displays.**
6. **The "right" advertising theme and media.**

Your experience will guide you on the "right" product and price.

I would hesitate to recommend one package over another . . . or for that matter be able to justify why one costs twice as much perhaps as another. I believe that in packaging, as in many other things, it's all a matter of "taste."

I think you'll agree that it's very seldom that two people can agree on what makes an effective package. But I think we can all agree that the main things to keep in mind are simplicity and, when possible, transparency. Let your products be seen.

Retail salesmanship, in almost every line, can stand a lot of improvement.

Just the other day I read an article by a noted economist, Roger Babson, in which he estimated that if every U.S. retail sales person would attend a course in sales fundamentals—once a week for one hour a week—the nation's inventory backlog would be wiped out and all our unemployed put back to work within the year.

In other words, your sales people should be able to tell their customers about the product's quality and about its various uses.

The point to remember is that even though your salesmen are less high priced than radio or TV announcers, they can be even more effective when it comes to actually "selling" your products . . . if they know what to say and how to say it.

Stir Up Curiosity

It should also be remembered that a few simple and inexpensive advertising gadgets—like arm bands, or buttons, or small "teaser" signs—can greatly increase a sales person's selling power by helping to excite the customer's curiosity and by practically forcing the salesman to satisfy that curiosity.

Concerning "the right window and store displays" the window display is of first importance. This is because the counters and islands always take their cue from the window—which, in turn, gets its basic theme from the special product and/or the occasion being merchandised.

As previously suggested, a little research on what your fellow retailers are doing in the window display line—particularly the department stores—will result in more good display ideas than you can shake a stick at.

Many window displays are devised so anyone can do them. You don't have to spend good money with professional decorators to get the job done right. For example, many windows could very easily be done by the youngsters in the family . . . gathering leaves, buying pumpkins and squash and all the other props would be duck soup to an ambitious teenager.

And get the full advantage from your displays. If possible keep a small spotlight on the display so that it works for you both day and night.

The would-be advertiser has a cafeteria counter choice of advertising media: newspaper ads, radio, TV, direct mail, flyers, stuffers, posters, etc. But here again it is wise to decide on what you want said in your advertising before trying to pick and choose from all the tempting media on display in the advertising cafeteria.

This makes good sense because when you think out the various advantages your products offer it is often evident that it would be more effective to tell that particular story on the radio than in a newspaper—or, vice versa.

However, no matter what type advertising is finally selected, the first requirement is to choose one that will make an impression on the prospective customers. If you're going to advertise at all you might as well try to make a real impression. The retailer who thinks he can attract the public's attention with only one short shot just doesn't know people.

What I'm suggesting is that the most successful advertising is year-round advertising . . . the kind that uses special events or occasions to step-up and spark the basic appeal of the quality and variety which the baker should always emphasize.

This doesn't necessarily mean daily ads, or a daily radio program, or anything like that. It does mean keeping the retailer's name and claims before the public on some sort of a consistent basis. So that when his special event ads do appear they will be read by prospects who already believe in him and in the quality of his products.

In other words, for the consistently successful advertiser every day is a holiday.

It's easy to secure a list of the "days." "weeks" and "months" that are celebrated or promoted throughout the year and when you add in the regular holidays and local celebrations you have a mighty full promotion calendar.

Test Your FERTILIZER I. Q.

By DR. MALCOLM H. McVICKAR
Chief Agronomist, National Fertilizer Assn.

Q. What are Mixed Fertilizers?

A. As the name implies, mixed fertilizers are those that supply at least two of the three primary plant foods (nitrogen, phosphoric acid and potash). A complete mixed fertilizer supplies all three primary plant foods while an incomplete mixture supplies only two of the three. (For example, a mixed fertilizer containing only nitrogen and phosphoric acid would be an incomplete mixture.)

PESTICIDE CARRY-OVER STOCKS AS OF SEPT. 30

— See Story on Page 1 —

Pesticide—	No. of reports	Total stocks (technical plus mixtures), in terms of technical 1953 (1,000 lb.)	Total stocks (technical plus mixtures), in terms of technical 1954 (1,000 lb.)	Mixtures only, including concentrates, formulations, etc., in terms of technical 1953 (1,000 lb.)	Mixtures only, including concentrates, formulations, etc., in terms of technical 1954 (1,000 lb.)
Aldrin (60% equivalent)	55	5,082	2,590	**	**
Benzene hexachloride (gamma, except lindane)	64	5,563	6,715	1,572	2,022
Ca'cium arsenate	39	6,381	5,255	670	770
Captan	22	*	*	*	*
Ch'ordane	68	1,307	1,594	586	703
Chloro—IPC	22	1,944	1,707	824	699
Copper su'fate	44	15,856	11,389	2,138	1,678
Cryolite	22	*	*	*	*
2,4-D (acid equivalent)	48	9,958	8,554	6 602	6 534
DDD (TDE)	48	3,411	2,230	*	*
DDT	90	20,497	24,933	7,950	8,718
Dieldrin	50	2,998	2,060	*	*
Dithiocarbamates	43	977	1,073	550	496
Heptachlor	30	1,338	963	*	*
Lead arsenate	38	9,163	6,297	2,683	1,338
Lindane	59	712	592	118	169
Malathion	59	167	1,571	74	337
Methoxychlor	49	160	269	110	209
Organic mercurials	13	**	**	**	**
Parathion	60	1,468	2,095	612	759
Sodium chlorate	12	**	**	**	**
Sodium TCA	33	1,216	2,207	*	*
Soil fumigants	17	**	**	**	**
Sulfur, ground	63	26,896	22,852	12,220	13,027
2,4,5-T (acid equivalent)	38	2,792	2,266	1,730	1,539
Toxaphene	65	14,858	9,360	3,467	4,033
Grand totals	..	149,534	134,641	47,623	50,141

*Figures being maintained in confidence, but stocks reported are included in grand totals.

**Figures inadequate, but those reported are included in grand totals.

CANADA TIMBER SPRAYING

(Continued from page 1)

spray project is Forest Protection, Ltd., of Montreal and Campbellton, N.B., a non-profit organization set up by the timber industry and aided by provincial and Dominion governments.

The agency was responsible also for the 1954 budworm spraying project of 1,200,000 acres and the 1953 project of 1,775,000 acres, both in northern and central New Brunswick.

This year, for the first time, spraying will be pushed into the rugged Gaspe Peninsula region of Quebec. Five new spray fields are being chopped out of the bush in the wild region east of Causapscal, between the St. Lawrence River and the Bay of Chaleur.

Like the nine airstrips built for previous budworm spraying work in the region, the new fields will be designed to handle single-engined spray aircraft. The standard forest spraying machine in Canada has been the Stearman biplane equipped with a 450 h.p. engine.

Earlier this month Canadian spray operators reported they were being contacted and asked to furnish aircraft for the project. In the past, the number of Canadian aircraft available has not been adequate, and additional Stearman sprayers have been brought in from the U.S. It is expected that this will be the case again this year.

Most of the sprayers for the 1953 and 1954 projects were drawn from the U.S. West and Southwest, where pools of aircraft and experienced pilots exist. Some aircraft were ferried nearly 7,000 miles, round trip, in connection with the projects.

Spray planes will begin to leave their Canadian and U.S. bases for this year's project about May 10-15. They will be assigned to various spray fields and areas and be calibrated during May and early June. Actual spraying will begin probably the second week in June, depending on temperatures and development of the budworm larvae.

Budworm infestation has been extremely heavy in New Brunswick, and the caterpillar is both endemic and epidemic in many other parts of Canada, all the way to the West Coast. Dominion officials reported a heavy infestation in the Fraser River region of British Columbia, but recommended against spraying this year.

Large-scale forest spraying got its start in Canada in 1952, when the New Brunswick International Paper Co. brought 21 planes into the bush to spray 200,000 acres south of Dalhousie, N.B. Success of that operation set the pace for the expanded projects that have followed.

Both New Brunswick and eastern Quebec lean heavily on the growing and processing of balsam fir for income. Most of the cut timber goes to the area's huge pulp and newsprint paper mills. Any large-scale killing of trees would be a major economic catastrophe for the region.

Timber officials here say the budworm spraying program very probably will go on "for another five years." No spraying has yet been done on the north shore of the St. Lawrence where more vast timber holdings exist.

Pesticide Panel on New Jersey Program

NEW BRUNSWICK, N.J. — New Jersey Farmers' Week will feature a panel on insecticide residue tolerances, according to Ernest G. Christ, extension fruit specialist at Rutgers University.

The panel is scheduled for Jan. 28, and will be the final feature of the day's program sponsored by the New Jersey Horticultural Society in the War Memorial Building, Trenton.

Explaining effects of the Federal Miller Bill will be Robert C. Stanfil of the Philadelphia District, Food and Drug Administration; Lee S. Hitchner, National Agricultural Chemicals Assn., and Dr. Charles H. Mahoney, National Canners' Assn., both of Washington.

U.S. TIMBER SPRAYING

(Continued from page 1)

Mexico budworm work will add another 300,000 acres. Other projects, expected to be announced later by federal and state agencies, should push the timber-spraying total in the West this year to well above the million-acre mark.

Stumbling block thus far is money. Federal forest administrators say some funds are still available from the pest control appropriation of 1954, but "not enough to do projects of this size."

Requests for special appropriations are expected to hit Congress shortly. Such requests will have the backing of commercial timber interests, as well as the forest service.

In Oregon a portion of the timberland involved is owned by the state, and money for that portion of the project will be requested from the Oregon State Legislature, which is now in session. About 80% of the land involved in the Oregon project belongs to the federal government, with 20% split between the state and private owners.

Bids will be asked and contracts will be let by the U.S. Forest Service.

In the past such contracts have been broken down into three parts—chemicals, transportation and flying. Bids usually have been called in late winter or early spring.

Forest officials hope Congress will take action in time for this procedure to be followed again this year, so the huge task of building bush airstrips, transporting the material, and organizing the projects can get under way as early as possible.

Alex Janicke, USFS coordinator in Portland, said most of the area involved in the Oregon project is at 4,000 ft. above sea level or higher. The spraying will be carried out in three units—250,000 acres in the Ochoco area, northeast of Prineville; 250,000 acres in the Malheur area, north of John Day; and 100,000 acres west and east of Baker.

All spraying on both the Oregon and New Mexico projects will be done by aircraft. Chemical will be DDT, applied at the rate of one pound of technical DDT in one gallon of diesel oil per acre.

The Oregon spray work, if it comes off, will be the largest timber application job in the West since the million-acre-plus projects of the early 1950's. It is almost entirely "new" land. Only a small portion has been sprayed in previous budworm work, according to L. M. Compton, of the State Division of Forestry.

Mr. Compton said the budworm has been endemic in the area, and under watch by state entomologists. Last fall the infestation "suddenly took off," he said.

WEED FIGHT

MARYSVILLE, KANSAS — Approximately 11,600 acres of land in Marshall County, Mo. were treated with 2,4-D last season, according to August Ungerer, county weed supervisor. The county will place an order for 30,000 lb. sodium chlorate for the coming season.

WORLD REPORT

Industry News from Everywhere

By GEORGE E. SWARBRECK
Croplife Foreign Office Manager

Radar is being used to spot the progress of locusts in the infested area extending from India to Morocco. A successful experiment in detection has been carried out in the Persian Gulf, midway between Bushire and Kuwait, by the British naval vessel Wild Goose.

The experiments were based on the premise that since rain clouds could be detcted by radar so could locusts for half the weight of a locust is made up of water. The Anti-Locust Research Center in London enlisted the aid of the British Navy.

The set used in the Persian Gulf experiment was a combined air and surface warning radar outfit, working on a centimeter wavelength. The swarm detected appeared to be of at least 15 miles radius and is described as giving large "fluffy" echos on the plan position indicator. Ranges of up to 60 miles were obtained.

As confirmation, flying locusts were pinpointed in the light of a 10 in. signalling projector, and next morning dead locusts were seen floating on the sea.

The research center has now asked all ships equipped with radar to watch for swarms and report them, for the new method is seen as providing a useful supplement, particularly at night, to the visual reports made from land and sea.

Serious damage is still reported from Morocco as a result of an unprecedented infestation. The government has placed a large order for hexyclan with the Dutch insecticide firm of Noury van der Lande N.V. because of its ability to give immediate delivery. Initial supplies needed for the operation were flown out from Holland to North Africa.

Freights

Shipping men predict that the current trend towards higher freight rates will continue into 1955. (Croplife Jan. 10, page 18.) Higher schedules, effective with the new year, have already been announced with North American, British West Indian and Mediterranean ports involved in the hikes.

Outward freight rates from the U.K. and north continental ports to India, Pakistan and Ceylon are to be increased by about 10% Feb. 1. Inward rates from India and Pakistan are slated to take a similar boost on the same date, with the exception that action from eastern Pakistan ports and Calcutta will be delayed to Feb. 9. No decision has been made on rates from Ceylon though these, too, are expected by traders to be increased.

Despite the higher charges, space is still difficult to obtain. The lack of ocean tonnage is attributed to the stepped up movement of U.S. surplus commodities under aid, disposal and other programs and to the expansion of international trade generally.

Subsidies

Fertilizer subsidies, ended by the former Socialist government in Britain and reintroduced by the present Conservative administration, are to be maintained, officials state.

The subsidy on phosphatic fertilizers, amounting to 30% of the cost, was brought back in November, 1951, one month after the government took office. In the spring of 1952 a 15% subsidy on the cost of nitrogenous fertilizers was reintroduced after its abolition in two stages by the Socialists.

In April, 1953, the U.K. government extended the lime subsidy to cover the cost of spreading as well as the lime itself.

New Plant

The Yugoslavian economic commission has announced a plan for the development of the well known Bor copper mine. Included is a project for the erection of a sulfuric acid plant at Bor and a plant for the manufacture of superphosphates at Parhovo.

Training Course

The Food and Agriculture Organization of the United Nations is to organize another study group on soil fertility. Work will start in India in July, 1955. The first of these training courses was held in India from July to October, 1952, and was attended by 19 students from seven countries in south east Asia.

During the course of about 150 lectures and field demonstrations, the trainees will study the conduct of soil fertility investigations, the nutrient requirements of paddy, fertilizer responses and practices, soil analysis and diagnostic experiments.

The FAO program has helped to hike the interest in the fertilization of the rice fields in the Far East, and the cooperation of governments has been assured. In Ceylon, the authorities provide a subsidy to reduce the price of fertilizers by more than 30%. In India, growers are able to obtain phosphatic fertilizers at 25% under the regular price while in Thailand the reduction is 50%. In Viet Nam cultivators proving a need received fertilizers free of charge.

Clemson Pesticide School Dates Set

CLEMSON, S.C.—The fourth annual Pesticide Chemicals School will be held at Clemson College here Feb. 15-16. Hotel reservations should be made directly with the Clemson House. Other correspondence pertaining to the event should be directed to Dr. J. H. Cochran, Clemson Department of Entomology and Zoology, or to Dr. G. M. Armstrong, Clemson Department of Botany and Bacteriology.

Canadian Sales In 1953-54 Top 1.5 Million Tons

Decline Reported In Domestic Use of Materials, Mixtures

TORONTO — Canadian sales of mixed fertilizers and of fertilizer materials for direct application to the soil, including movement to both the domestic and export markets totaled 1,544,170 tons in the year ended June 30, 1954.

This was revealed by the Canadian government's bureau of statistics in its annual review of the fertilizer trade. Canadian users took 811,641 tons, made up of 160,481 tons fertilizer materials and 651,160 tons mixtures.

These figures show a reduction of 10.6% and 1.7% respectively under the corresponding amounts sold in the fertilizer year ended June 30, 1953.

The production of fertilizer materials in the year 1953-54, including ammonium nitrate, ammonium phosphate, ammonium sulfate, superphosphate and cyanamide, amounted to 1,091,425 tons, compared with 1,036,986 tons in the preceding year.

The output of mixed fertilizers increased from 693,959 tons to 700,995 tons. The report points out, however, that the figures for the materials and mixtures are not additive as some of the former were used in making the latter.

Imports of fertilizers amounted to 745,728 tons, compared with 823,953 tons during the previous fertilizer year. A breakdown of imports shows that natural phosphate accounted for 341,766 tons; superphosphate 188,832 tons and muriate of potash 17,067 tons.

Exports consisted of 693,150 tons of materials and 39,379 tons mixtures, representing declines of .6% and 26.5% respectively from the previous year. Canada's major exports include ammonium sulfate, ammonium phosphate, ammonium nitrate and cyanamide.

A total of 48 fertilizer companies reported to the government for the purpose of compiling the statistical information.

St. Regis Paper Co. Consolidates Districts

NEW YORK—St. Regis Paper Co. has announced that the Mid-Atlantic district of its Multiwall Packaging Division was consolidated into the eastern district of that division, effective Jan. 1.

Howard C. Peterson, Jr., vice president of St. Regis Sales Corp, sales subsidiary of St. Regis Paper Co., is in charge of this consolidated district.

H. Stanley Hangen, who retires Dec. 31 as vice president of St. Regis Sales Corp., has been in charge of the Mid-Atlantic district. He will continue to serve the company in a consulting capacity.

Other appointments in the new eastern district are those of Lauren E. Gjovig as manager of engineering, Elmer E. Wilke as manager of field engineers, and George W. Leopold as manager of the materials testing laboratory located at Allentown, Pa.

Spray Project

DUCHESNE, UTAH — Duchesne County will spray sage, willow bush and mesquite in Sowers Canyon south of here as a 1955 range improvement project, according to Robert S. Murdock, county agent.

World Nitrogen Production, Use Show Increase

LONDON—The world production of fixed nitrogen in the year ended June 30, 1954, has been estimated at 6,861,100 metric tons, an increase of 11% over the previous year. World consumption is assessed at 6,852,600 metric tons, an increase of 11.5% for agricultural usage and more than 22% for industrial purposes.

These figures, compiled by the British Sulphate Ammonia Federation, Ltd., of which F. C. O. Speyer is chairman, were presented in the recently issued 34th annual report.

Europe, including Russia and the eastern zone of Germany produced 3,629,000 tons and consumed 3,176,100 tons. The U.S., Canada and Chile produced all but 14,000 tons of the total of 2,414,300 tons credited to the Americas with consumption set at 2,444,600 tons.

Asia, including North Korea and Manchuria, produced 753,800 tons but consumed 1,008,300 tons. Africa produced 44,400 tons and consumed 191,100 tons. Oceania produced 19,600 tons against a consumption of 32,500 tons.

The U.K. reported a total nitrogen usage of 242,553 tons in 1953-54, an all-time high.

Exports of sulfate of ammonia by the U.K. trade in 1953-54 were reported at 299,016 long tons, a reduction of 34% from the 1952-53 figure of 455,577 tons. In that year, however, overseas sales were exceptionally large, and the current figure merely continues the long term trend towards increased export business.

The federation undertakes, in association with Imperial Chemical Industries, Ltd., educational work aimed at increasing the usage of nitrogen by farmers. Advertising during the year under review concentrated on the use of nitrogen for grassland and cereals while trials were carried out on the effect of nitrogen on the yield and quality of various cereal varieties.

NORTHEAST WEED CONFERENCE

(Continued from page 7)

effectively controlled annual weeds for a longer period of time than recommended applications of DNOSBP. Striking effects of weed growth on potato yields were observed in tests conducted by J. S. Cobb at the Pennsylvania Agricultural Experiment Station.

Mr. Cobb and T. Eastwood, Wise Potato Chip Co., Berwick, Pa., also conducted experiments to determine effects of herbicides upon potatoes used for chipping. Their results supported previous work concerning effects of herbicides on the amount of reducing sugar in tubers and chip color. The contention that herbicidal materials had no influence upon keeping quality of potato tubers in cold storage was also upheld.

Weed control in field corn and legumes was discussed in 13 papers delivered at the Jan. 6 morning session on agronomic crops, while turf received main attention in the afternoon when 10 reports were made.

Experiment results in field corn were discussed in papers by E. R. Marshall, G.L.F. Soil Building Service, Ithaca, N.Y.; S. M. Raleigh, R. E. Patterson and M. P. Anderson, Pennsylvania State University, State College; Jonas Vengris, University of Massachusetts, Amherst, and Collins Veatch of the West Virginia Agricultural Experiment Station, Morgantown. S. M. Raleigh of Pennsylvania State University, State College, discussed quackgrass control, and preliminary studies on use of chemicals for drying alfalfa hay were described by E. K. Shaw and G. H. Ahlgren of the New Jersey Agricultural Experiment Station, New Brunswick.

Use of a wide angle nozzle and increasing pressure rather than water volume were recommended as a result of Pennsylvania experiments. Another Pennsylvania experiment with quackgrass showed good control using Dalapon, TCA and CMU.

Ammonium 2-ethylhexanoate and 2-ethylhexanoic acid were two of several hundred chemicals screened which gave most consistent and favorable response as desiccants. This was reported in the discussion on use of chemicals for drying alfalfa hay. Color dissipation was said to be one serious drawback to present studies.

Alfalfa growth was reported not affected and yields not reduced by application of ¼ to ½ lb. of 2,4-D. Measurable tolerance was indicated with 4-chloro, but ½ lb. reduced yields significantly. Red clover and alfalfa were severely injured by ¼ lb. of 2,4-D, but red clover was tolerant of ¼ to ½ lb. of MCP.

From Rhode Island experiments it was determined that crabgrass can be effectively controlled in lawn turf by pre-emergence treatment with PMAS at 5 to 7 pints an acre or Alanap-1 at 8 lb. an acre. Correct application rates and number of treatments still need to be determined. Crag-1 was an effective and safe herbicide for prevention of crabgrass germination, according to another paper. Most effective rate was observed to be 6 lb. an acre, with application delayed until after second or third cutting in newly seeded lawns.

C. G. Waywell, Ontario Agricultural College, Guelph, discussed effect of herbicidal treatments on oats. In his findings, 2,4-D had a marked depressing effect on yields when compared with MCP, and the early period of growth, from shortly after emergence to three and one half weeks after emergence, was determined to be most susceptible to herbicidal damage.

Papers not presented orally in sessions on agronomic crops were concerned with quackgrass control in field corn by preplanting applications of maleic hydrazide and Dalapon, preliminary report on the use of several new arsenicals and the effect of spray volume and rate of DN herbicides on weed control and clover stand in underseeded oats.

Concurrent sessions on forestry and industrial weed and brush control, aquatic plants and public health were held on Jan. 6. In addition to coordinating committee reports and panel and floor discussions, a total of 20 research and progress reports was made at these sessions.

The research coordinating committee met on Jan. 7 for discussion of research prior to issuance of its summary report for 1955.

MINNESOTA TESTIMONIAL — Friends from industry and government honored H. A. Halvorson (center) who retired Jan. 1 as chemist in charge of the feed and fertilizer control division of the Minnesota Department of Agriculture, Dairy and Food. Mr. Halvorson and Mrs. Halvorson were guests at a testimonial dinner Jan. 7 in Minneapolis. At the left is Earl Hanson, Archer-Daniels-Midland Co., master of ceremonies at the program following the dinner.

H. A. Halvorson Honored At Testimonial Dinner

MINNEAPOLIS — A testimonial dinner for H. A. Halvorson on Jan. 7 was attended by about 70 guests. Mr. Halvorson retired Jan. 1 as chemist in charge of the feed and fertilizer control division of the Minnesota Department of Agriculture, Dairy and Food. He had occupied that position since the Minnesota feed control act was adopted 43 years ago.

Other guests at the dinner were members of Mr. Halvorson's family, co-workers, and former associates in the office. A "This Is Your Life" type of program brought out the highlights of Mr. Halvorson's career. Earl Hanson, Archer-Daniels-Midland Co., Minneapolis, was master of ceremonies. The program was a surprise to Mr. Halvorson.

The guest of honor was the recipient of several presents, including a watch and a book of letters.

Bermuda Established Despite Drouth

BARTLESVILLE, OKLA. — Common Oklahoma Bermuda grass has been successfully established at Phillips Petroleum Co.'s agricultural demonstration project near Foraker, Okla., under drouth conditions, the firm has announced.

With only 3.6 in. precipitation between Jan. 1 and April 7, 1954, the date of sprigging, and with only 15.4 in. precipitation since sprigging date, an excellent stand of grass was developed by applying ammonium sulfate at the rate of 100 lb. per acre, the firm stated. By mid-August, limited summer grazing was available, and during late fall considerable additional grazing was provided.

IRRIGATION PROJECT

LAREDO, TEXAS — The mighty Falcon Dam on the lower Rio Grande will soon be diverting water onto another 741,000 acres of cropland on the Mexico side of the border. Mexico is now constructing an irrigation system costing more than three million dollars, according to Guillermo Castillo, Mexican engineer.

Mid-South Farmers Turn Attention to State Legislature

MEMPHIS — Wet weather kept Mid-South farmers from work in the field recently, and many turned their attention toward state capitols where legislatures are in session.

While no major agricultural legislation is expected in the states, farmers are watching the activities of their own legislators on minor laws affecting taxes on agricultural commodities.

In Arkansas, they are watching action on a bill to repeal the sales tax on feed, seed and fertilizers. This bill has the backing of Gov. Orval Faubus.

And on the farm front in Arkansas, C. A. Vines, associate director of the Agricultural Extension Service in Little Rock, said recent heavy snows and some rain in Arkansas should help to ease a winter shortage of moisture.

Some farmers point out that a good snow will soak the soil and build up subsoil moisture better than rains. Most of North Arkansas received a heavy snow recently and the remainder of the state has had good rains.

In West Tennessee, District Agent Judd Brooks, at Jackson, reported that "winter grazing is ranging from fair to excellent. Wet weather has been helpful to some cover crops with the best reports coming from southern counties of the area."

Finance Plan

LITTLE ROCK — The Arkansas Foundry Company of Little Rock, which makes anhydrous ammonia tanks for sale to retailers only, has set up a three-year plan to finance sales of its products by the dealer to the consumer. Qualified farmers who are approved for this long-term credit may obtain up to five years for such purchases.

Production of Superphosphate Shows Gain in November

WASHINGTON — U.S. production of superphosphate during November amounted to 191,631 short tons (100% A.P.A.), according to the Bureau of the Census, U.S. Department of Commerce.

The figure represents an increase of 4% from the revised October, 1954, output, and is 18% more than the figure reported for the corresponding month of 1953.

Shipments of all grades of superphosphate totaled 112,763 tons for November, or a decrease of 6% from the previous month's volume and an 18% increase from the figure reported for November, 1953.

LOSS OF OAKS SEEN

WORCESTER, MASS. — It is only a matter of time before Massachusetts loses its oaks from oak wilt, now centered in the Midwest and steadily creeping eastward, Prof. Gordon King of the University of Massachusetts told the Union Agricultural Meeting here Jan. 6.

EXPENSIVE GUESTS

EAST LANSING, MICH.—Insects were Michigan farmers' most expensive guests in 1954. The pests ate or damaged $119,312,099 worth of food, according to calculations by the Michigan State College entomology department. On crops alone the insect take was more than $39½ million out of a total value of $482 million. Warbles, flies, mites and lice on livestock did $74½ million damage. They caused a milk loss of almost $4 million. Eggs lost because of insects amounted to well over $1 million worth.

NEW AUSTRALIAN PLANT

BRISBANE, AUSTRALIA—North Queensland Fertilizers & Chemicals, Ltd. has announced that its big Cairns superphosphate and sulfuric acid plant was expected to go into commercial production by the end of 1954. The full requirements for superphosphate and sulfuric acid for all of North Queensland is expected to be manufactured in this £300,000 plant.

SOUTHERN WEED CONFERENCE

(Continued from page 5)

eral and state agencies, the user, and finally the public, facts pertaining to herbicides and their development and use to minimize any possibly retarding influences.

"The first responsibility of the chemical manufacturer in the development of a weed control program is to keep in mind that the relationship between himself and the growers, or other possible customers, is economic in character." Thus did J. W. Britton, manager of the agricultural chemicals division of the Dow Chemical Co., Midland, Mich., introduce his subject.

The grower must see clearly an economic advantage to buying a preparation, he continued. The manufacturer should choose problems which can be solved chemically. The maker of a chemical should establish performance on a broad enough basis to warrant a manufacturing and selling campaign, and then release the preparation as quickly as possible to other research agencies for further experimentation.

The work of obtaining satisfactory formulation falls to industry. The compatibility of a preparation with almost all kinds of water, as well as with other agricultural preparations should be covered by the manufacturer. All hazards would be determined. Publication of results is desirable, but firms expending money for research are in business to turn a profit —otherwise they would have no business. A great many other matters which industry must tend to include registration, labels, storage conditions, effects on various metals used in construction of farm machinery and correcting deficiencies.

New officers of the conference, elected during the annual business session, are as follows: G. C. Klingman, North Carolina State College, Raleigh, N.C., president; W. B. Albert, Clemson College, Clemson, S.C., vice president; E. G. Rodgers, University of Florida, Gainesville, secretary-treasurer. Named to the executive board were: W. K. Porter, Jr., Louisiana Agricultural Experiment Station, Baton Rouge, La., H. E. Rea, Texas A. & M., College Station, Texas, and J. R. Wheatley, Carbide & Carbon Chemicals Co., New York, N.Y.

The next annual meeting of the SWC will be at the Jung Hotel, New Orleans, La., Jan. 16-18, 1956.

During the convention, it was announced by Herbert W. Kip, Hay Fever Prevention Society, Inc., Palm Beach, Fla., that weed control chemicals can mean relief for seven or eight million hay fever sufferers in the U.S. Ragweed, he said, causes at least 80% of hay fever cases, and one-third of the untreated or improperly treated cases become asthmatic.

This weed can be eradicated by proper use of chemical herbicides, Mr. Kip explained. It is thought that widespread control measures will spark sales of 2,4-D, for its control.

The morning of the first day of the meeting was taken up with reports by the various research committees, following year-long study. The several chairmen of the committees making the reports were as follows: G. M. Shear, Virginia Agricultural Experiment Station, Blacksburg, Va.; W. K. Porter, Jr., Louisiana Agricultural Experiment Station, Baton Rouge, La.; V. S. Searcy, Agricultural Experiment Station, Auburn, Ala.; W. E. Chappell, Virginia Agricultural Experiment Station, Blacksburg; J. B. Baker, Louisiana State University, Baton Rouge; G. C. Klingman, North Carolina State College, Raleigh, who also was chairman of the research committee and moderator of the morning session.

J. K. Leasure, University of Tennessee, Knoxville, Tenn.; R. P. Upchurch, North Carolina State College, Raleigh; E. R. Stamper, Louisiana Agricultural Experiment Station, Baton Rouge; Ellis W. Hauser, Georgia Agricultural Experiment Station, Experiment, Ga.; C. G. McWhorter, Delta Branch Experiment Station, Stoneville, Miss.; C. E. Fisher, Texas Agricultural Experiment Station, Spur, Texas; W. B. Ennis, Jr., Mississippi Experiment Station, State College, Miss.; D. E. Davis, Department of Botany & Plant Pathology, Auburn, Ala.; E. B. Hollingsworth, Mississippi Agricultural Experiment Station, State College, Miss.; and Mr. Shaw.

Speaking before the session devoted to weed control in cotton, the morning of the second day, E. D. Witman, Columbia Southern Chemical Corp., Pittsburgh, Pa., said the fundamental need for better weed control in cotton is to provide more factual information on chemical use to the farmer.

"To date," Dr. Witman reported, "only a trickle of factual information on chemical weed control has reached the farmer from state and federal authorities. Farmers are afraid to use chemical controls because of reports of injury, expensive specialized equipment needed, element of chance on retreatments of soil and cost factors which are based on rumors and hearsay. Many farmers and bankers are loath to investigate chemical weed control and dismiss great savings merely because such 'new fangled' ideas have not been interpreted to them in a simple, factual way," he said.

The basic problem can be solved by factual information by state and industry groups, he said. Information should include facts. Accurate tables of cost comparison with other methods and information on early and late planting dates should be provided the farmer, along with the time needed to use chemicals and details on equipment needed, where it can be procured and what the cost factors are, Dr. Witman concluded.

Also appearing on the program during the session devoted to weed control in cotton the morning of Jan. 18 was Dr. W. B. Albert, South Carolina Agricultural Experiment Station, who showed the effects of heavy applications of pre-emergence herbicides to cotton in relation to seasonal conditions. The rates of application of various herbicides were greatly in excess of those commonly used or recommended, but differences between herbicides developed.

During the afternoon session on weed control in cotton, G. D. Hill, Grasselli Chemicals Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., talked of soil relationships of substituted urea herbicides for pre-emergence weed control.

"On the basis of chemical and biological tests," said Dr. Hill, "it was concluded that applications of 'Karmex' herbicides at recommended rates would be reduced to harmless levels in each soil type within eight to twelve months after application."

During the session devoted to weed control in agronomic crops, which also met the morning of Jan. 18, Dr. L. H. Hannah, Monsanto Chemical Co., St. Louis, discussed field studies with two new classes of herbicidal chemicals.

He talked of alpha-chloro-N, N-daillylacetamide and alpha-chloro-N, N-diethylacetamide, as well as CPD of the type of 2-chloroallyl diethyldithiocarbamate, as showing promise as pre-emergence herbicides for specific problems among a variety of agronomical and horticultural crops. They cause little crop damage, are successful on heavy clay soils, effective at low rates on heavy soils, are not modified greatly by moisture and should not result in serious hazards, he said.

Compound 444, a new pre-emergence and post-emergence herbicide for cotton, was discussed by H. M. Day, Geigy Agricultural Chemicals, Bayonne, N.J. Mr. Day told that in field tests, the only crop injury was a slight reduction in the growth of beans when Geigy 444 was applied as a post-emergence spray to cotton, sweet corn and snapbeans.

A post-emergence spray at the rate of 12 lb. per acre was applied to cotton and snapbeans and resulted in slight growth reduction of the cotton and severe injury to beans, he said. Germination of rye grass, oats, snapbeans, peas, cucumbers, radishes, spinach, cotton, tomatoes and sweet corn was not affected seriously when 444 was used as a pre-emergence spray.

Floyd Hendrix, president of the Hendrix-Barnhill Equipment Co., Inc., Greenville, N.C., said that applicator equipment is the bridge between the chemical manufacturer and the farmer.

He told of his development of an applicator with a new approach to pre-emergence spray equipment.

The machine utilizes a shoe-like attachment which replaces ordinary rollers to smooth the soil in preparation for the spray. The shoe is pointed at the front, flaring toward the rear, and pushes the loose dirt of the furrows out of the way. Proper pressure is applied, and the spray is applied just to the rear of the shoe.

W. A. Meyers, American Chemical Paint Co., Ambler, Pa., from field tests of standard and new brush killer formulations, concluded the following: (1) From experience in applying various phenoxy acid formulations to woody plants, there are differences in the kill when different formulations are used even through the formulations have the same amount of acid and the same esters.

(2) There is a significant difference in kill of red maple and white oak using ACP-L-329 over Weedone 2,4,5-T, both formulations containing the same amount of 2,4,5-T acid as the butoxy ethanol ester.

(3) ACP-L-329 showed significantly better kill of white oak over ACP-L-380 when used as an oil-water basal spray even though both sprays contained the same amount of acid.

Silvex was described as a promising brush control chemical for the South by J. W. Gibson, Dow Chemical Co., Oklahoma City. Mr. Gibson pointed out that Silvex is effective for all species of oak, and is much less harmful at drift quantities than 2,4-D according to trade observations.

During the morning of the second day, a session was given over to a discussion by several speakers of weed control in agronomic crops, presided over by J. K. Leasure, University of Tennessee, Knoxville.

At the same time, another session, led by R. P. Upchurch, North Carolina State College, Raleigh, considered weed control in cotton.

In the afternoon, the weed control in cotton session continued, moderated by W. K. Porter, Jr., Louisiana Agricultural Experiment Station, Baton Rouge, and another session talked of control of woody plants. This was presided over by Robert A. Darrow, A & M College of Texas, College Station.

On the morning of the final day, three sessions were scheduled, to discuss weed control in agronomic crops, physiological problems in herbicidal investigations, and weed control in horticultural crops and special weed problems.

They were presided over, respectively, by: V. S. Searcy, Agricultural Experiment Station, Auburn, Ala.; D. E. Davis, Dept. of Botany & Plant Pathology, Auburn, Ala., and Ellis W. Hauser, Georgia Experiment Station, Experiment, Ga.

During the afternoon, A. M. Davis, University of Arkansas, Fayetteville, presided over a session devoted to weed control in agronomic crops; W. E. Chappell, Virginia Agricultural Experiment Station, Blacksburg, moderated a session on physiological problems in herbicideal investigations; and D. S. Burgis, Gulf Coast Experiment Station, Bradenton, Fla., presided over the session discussing weed control in horticultural crops and special weed problems.

Dr. Klingman, announcing his plans as president of the conference in 1955, appointed a research sub-committee to study aquatic weeds. He also appointed sub-committees on fruits, vegetables and ornamentals.

The convention closed with a panel discussion of extension weed control problems and their solution. Moderating was W. G. Westmoreland, North Carolina State College, Raleigh.

Appearing on the panel were: Dr. W. B. Innis, Mississippi; Mr. Kip; F. C. Elliott, Texas A & M, College Station; J. R. Paulling, Federal Extension Service, Washington, D.C.; R. A. Darrow, Texas A & M; William A. Balk, Agricultural Experiment Station, Blackville, S.C.; Mr. Westmoreland; L. C. Cowart, Du Pont, Wilmington, Del.; R. A. Bonilla, University of Puerto Rico Agricultural Extension Service; Mr. Klingman; and E. A. Wolf, Everglades Experiment Station, Belle Glade, Fla.

DU PONT MOVIE

ST. PETERSBURG, FLA. — The first showing of a movie depicting the use of Karmex DL on cotton was presented to about 55 members of the press, industry and government by the Du Pont Co. at a Jan. 18 breakfast during the Southern Weed Conference here. The movie is designed as a report to cotton growers on the product. Acting as moderator, Dr. Dale E. Wolf, manager of agricultural chemicals research for Du Pont, explained that the substituted urea herbicides were tested as pre-emergence treatments in cotton in 1950. The product has a very low order of toxicity, and is recommended for controlling weeds in cotton, according to Dr. Wolf. He said that as long as pre-emergence rates are used, there will be no accumulation of the material in the soil since it appears to be decomposed biologically.

California Weed Conference Set

SAN FRANCISCO — When the California Weed Conference convenes in Santa Barbara this week the delegates will hear a discussion of amino triazole, a new poison oak killer which has been field tested during the past year by Oliver A. Leonard, botanist at the University of California.

According to Mr. Leonard, who is located on the Davis campus, treated poison oak plants show no signs of sprouting. The University of California scientist will discuss this compound and other weed and brush killers during the two day conference, scheduled for Jan. 26-27 at the Carrillo Hotel.

The conference will also include discussions on costs of weeds, plants poisonous to livestock, formulation problems, and particular weed problems of the south-coast area. The meetings are open to farmers, commercial pest control operators and weed control officials.

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The rotational circulation of this issue is concentrated in the Northeastern states.

Business Education Needed

Frequent mention is made about the need for better public relations means to point out how valuable pesticides and fertilizers are in lowering food costs and making possible improvements in both quantity and quality of foodstuffs.

There is still much to be done along this line, but sometimes one is startled to find that a much more basic job needs to be done not only with the adult population of our towns and cities, but with the youth, as well.

As a guess, what would you say that the teenagers in the high school of your community think about such things as government in competition with private business; of government-guaranteed annual wages to assure "security"; of freedom of choice in seeking a career; of placing a ceiling on how much a person is allowed to earn? If you are assuming that they believe wholeheartedly in many of the fundamental institutions of our system, then you may be in for revising your opinion.

A recent questionnaire answered by 1,280 high school seniors in 86 schools throughout the country, indicated some rather startling facts. In the first place, 82% believe that in many industries, one or two companies constitute virtual monopolies. Only 39% believed that "keeping the profit incentive alive" is essential to the survival of our system.

As to the manner in which the fruits of production are shared, 60% said that the owners get too much of the profits; 76% think that most of the gains from new machinery go not to employees, but to the owners. More than half, 56%, said that the best way to raise living standards is for workers to get more of the company's income.

And, to clinch the direction of trend, 60% said that a worker should NOT produce all he can! To describe the "fairest kind of economic system," 55% of the seniors said that the phrase, "from each according to his ability and to each according to his needs" is just fine!

Another study of the same type shows a similar trend in youthful thinking toward the illusive security of a government-dominated economy. More than half of the 1,000 seniors from three high schools in Connecticut, New Jersey and Pennsylvania believed that "jobs for all is a government responsibility"; that government should control prices and closely regulate business. A surprising number (from 30 to 60%) also approved government ownership of banks, railroads, steel and oil companies.

These opinion polls show, then, that American youth know too little about our economic system.

There is a brighter note in the story, however. This is that students do respond to efforts to correct fuzzy ideas about how business operates. For instance, significant changes in attitude are reported to have taken place after groups of seniors studied business and industry during a series of well-planned tours. The showing of a single movie which depicted accurately the growth of America's production and distribution systems, gave the seniors of one school the needed economic facts.

This brings up a practical question. Is your community alert to this need for business education among young people?

The Chamber of Commerce of the United States suggests that committees on education should cooperate with teachers to provide students with work experience and first hand information about business. Movies, recordings and other reliable teaching aids on economics can be used in schools to a tremendous advantage, it says.

In fact, suggests the C of C, business groups on local levels should be alerted to these evidences of trends in youthful thinking and should prepare questionnaires to test student opinions in their own areas. Having done this, projects should be developed by which ignorance or misinformation revealed by the questionnaires, could be corrected.

Many companies working in their own communities can wield a tremendous total influence in this direction. We hope that people in the farm chemical business will join in to put across the idea that business people are prime contributors to the general economy, rather than some breed of creature that needs to be held down.

Here are some of the means suggested by the Chamber of Commerce for helping out. Business men may offer to local educators their assistance in providing books, pamphlets or other literature; personal interviews, panel discussions or speeches at student assembly; student activities, tours, work-experience courses, business-education days; equipment or other materials for class or laboratory work; conferences with teachers planning new units in courses; and movies, slides, or other audio or visual presentations to carry the thought.

A Milestone Passed

A year ago this week saw Croplife's staff members and its publishers watching with keen interest as the first issue of this newspaper rolled off the presses. It was the issue of January 25, 1954; Volume 1, Number 1.

Today, we're still watching copies roll off these presses, but despite the gratification that comes from seeing our infant publication gaining weight and stature, we still recall the very special tingle of excitement when that first issue was out!

We are indebted to our many friends across the nation who have been responsible for Croplife's growth in its first year. We are sure that subsequent anniversaries will be milestones of continued progress as we move on our way.

Quote

A great many responsible persons—and in good faith—are urging us to cut down this year on soil treatment rate suggestions based upon soil tests because of the drouth and less money. But the soil needs for adequate nutrition of crops is not influenced by economic prosperity or depression, the need for drouth relief or other such factors. Instead, the soil is influenced by agronomic practices.

Cutting down the suggested treatment rates based on soil tests for emergency or "political" reasons instead of agronomic considerations would destroy the very basic philosophy behind soil tests—that of eliminating plant food as a limiting factor of production. Needless to say, I am strongly opposed to such a move.

There may be cases where a farmer decides to make a fertilizer application at a less rate than shown by soil test as the necessary rate to eliminate plant food as limiting, but that is entirely different than just ignoring the needs of the soil in interpreting soil tests. In other words, I am perfectly willing to agree that soil tests may be only one of the factors to be considered in deciding the treatment rate used by a specific farmer at a specific time, but I couldn't subscribe to changing the real meaning of tests to merely meet pressures of the moment which could and would change from time to time.—John Falloon, Extension Professor in Soils, Missouri Extension Service, Columbia, from his paper, "What We Are Trying to Do with Soil Testing."

CROPLIFE is a controlled circulation journal mailed to those responsible for the production and distribution of fertilizer and other farm chemicals and to retail dealers of the agricultural chemical industry in the U.S. To those not on the controlled list, CROPLIFE is available at $5 for one year, $9 for two years ($8 a year outside the U.S. and possessions). Single copy price, 25¢.

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MEETING MEMOS

Jan. 24-26—Pennsylvania Lime and Fertilizer Salesmen's School, Pennsylvania State University, State College, Pa.

Jan. 26—Northern California Nurserymen's Institute, University of California College of Agriculture, Davis, Cal.

Jan. 26-27—Eighth Annual California Weed Conference, Carbillo Hotel, Santa Barbara, Calif.

Jan. 28 — Colorado Agricultural Chemicals Assn., Annual Meeting, Cosmopolitan Hotel, Denver, W. D. Smith, P.O. Box 5510, Denver 17, President.

Jan. 31—Wisconsin Lime & Fertilizer Dealers and Pacemakers Corn Club, Memorial Union Theater, University of Wisconsin, Madison.

Jan. 31-Feb. 1 — National Cotton Council, 17th Annual Meeting, Shamrock Hotel, Houston, Texas.

Feb. 7-8—Seventh Annual Colorado Sprayers & Dusters Conference, Student Union, Colorado A & M Campus, Fort Collins, Colo., Leslie B. Daniels, Secretary, Colorado Aerial Sprayers & Dusters Assn., Fort Collins.

Feb. 7-9—Pest Control Conference, Oklahoma A & M College, Stillwater, Okla.

Feb. 7-9 — Association of Southern Agricultural Workers, 52nd annual meeting, Louisville; B. B. Jones, P. O. Box 1460, New Orleans, secretary-treasurer.

Feb. 8-11 — Fertilizer-Seed Dealer Meetings, University of Tennessee: Feb. 8, Andrew Jackson Hotel, Nashville; Feb. 9, City Hall, Jackson; Feb. 11, McCord Hall, University of Tennessee Farm, Knoxville.

Feb. 10-11 — Third Annual Oregon Fertilizer Conference, Oregon State College, Corvallis, Ore.

Feb. 10-11—Crop and Soil Conference, Oklahoma A. & M., Stillwater, Okla.

Feb. 11—New York Section, American Chemical Society, Symposium of Agricultural Chemical Development, Carbide and Carbon Bldg., New York.

Feb. 14-16 — Centennial Symposium, Nutrition of Plants, Animals, Man, Michigan State College, East Lansing, Mich.

Feb. 15-16—Fourth Annual Pesticide Chemicals School, Clemson College, Clemson, S.C. Direct Correspondence to Dr. J. H. Cochran, Clemson Dept. of Entomology & Zoology, or to Dr. G. M. Armstrong, Clemson Dept. of Botany & Bacteriology.

Feb. 17-18—Middle West Soil Improvement Committee, Annual Meeting with Agronomists, Palmer House, Chicago, Z. H. Beers, 121 W. Wacker Drive, Chicago 1, Ill., Executive Secretary.

Feb. 23-25—Tenth Annual Meeting of Midwestern Chapter, National Shade Tree Conference, Chase Hotel, St. Louis, N. B. Wysong, Cook County Forest Preserve, 536 N. Harlem Ave., River Forest, Ill., secretary-treasurer.

Feb. 23-25 — Fourth Annual Ohio-Indiana Agricultural Aviation Conference, Union Bldg., Purdue University, Lafayette, Ind.

Feb. 28-March 1—Fertilizer Section, Southern Safety Conference, Jung Hotel, New Orleans, Curtis A. Cox, Virginia-Carolina Chemical Co., Richmond, Va., Chairman.

March 7-9 — National Agricultural Chemicals Assn., Spring Meeting, Chase and Park Plaza hotels, St. Louis. Lea S. Hitchner, Barr Bldg., Washington 6, D.C., Executive Secretary.

March 8-9—Western Cotton Production Conference, Hotel Westward Ho, Phoenix, Ariz.; National Cotton Council, P.O. Box 18, Memphis 1, Tenn.

March 22-24—National Farm Chemurgic Council, Inc., Annual Conference, Deshler-Hilton Hotel, Columbus, Ohio; John W. Ticknor, NFCC, 350 Fifth Ave., New York, conference chairman.

March 24-25—North Central States Branch, Entomological Society of America, East Lansing, Mich.

May 19—Fertilizer Section, 25th Annual North Carolina Safety Conference, Robert E. Lee Hotel, Winston Salem, N.C; William C. Creel, Safety Director, Department of Labor, State of North Carolina, Raleigh, Chairman.

June 3—Fertilizer Section, Virginia State Safety Association, Jefferson Hotel, Richmond, Va; William C. Richardson Southern States Cooperative, Richmond, Chairman.

June 28-30 — Sixth Annual Pacific Northwest Plant Food Assn. Regional Fertilizer Conference, Boise Hotel, Boise, Idaho, Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., secretary.

Aug. 15-19 — American Society of Agronomy and Soil Science Society of America, University of California, Davis Campus.

Sept. 7-9 — Ninth Annual Beltwide Cotton Mechanization Conference, Texas A&M College, National Cotton Council of America, Box 18. Memphis 1, Tenn.

Oct. 17-18—Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago, Thomas J. Clarke, Chairman.

Nov. 2-3 — Annual Convention, Pacific Northwest Plant Food Assn., Pilot Butte Inn, Bend Ore., Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., Secretary.

Dec. 5-7—Agricultural Ammonia Institute, Kansas City; Jack F. Criswell, Executive Vice President, Claridge Hotel, Memphis, Tenn.

Rice Acreage, Market Control Plan Issued

WASHINGTON—A national rice acreage allotment of 1,859,099 acres and marketing quotas for the 1955 rice crop based on this acreage have been announced by Ezra Taft Benson, secretary of agriculture. He also announced Jan. 28 as the date for a referendum among rice producers to determine whether or not quotas will be in effect for 1955.

A total current supply more than 17% above the normal supply makes it mandatory under the law to establish acreage allotments and marketing quotas.

The 1955 national acreage allotment of 1,859,099 acres is 24.7% less than the estimated 1954 rice plantings of 2,467,000 acres but only about 11% below the five-year average of U.S. rice plantings. The division of the allotment among Arkansas, Arizona, California, Florida, Illinois, Louisiana, Missouri, Mississippi, South Carolina, Tennessee and Texas will be announced soon.

Barley Group Changes Name of Organization

MILWAUKEE — At its annual meeting held in Milwaukee recently, members of the Midwest Barley Improvement Assn. voted to change the name of this group to Malting Barley Improvement Assn.

The original name was adopted in 1945 when the association was organized. Since that time the barley improvement program has been carried on in seven midwest states: North Dakota, Minnesota, South Dakota, Wisconsin, Michigan, Illinois and Iowa.

The association elected A. B. Hessburg, vice president, Froedtert Malt Corp., Milwaukee, as president, succeeding Herbert H. Ladish, president, Ladish Malting Co., Milwaukee.

EQUIPMENT MEETING

MEMPHIS — More than 400 men who have mechanized Mid-South agriculture will come to Memphis Jan. 24-25 to discuss the outlook for 1955 and study management problems. It will be the 13th annual convention of the Mid-South Farm Equipment Assn., attended by dealers from Tennessee, Mississippi, Arkansas and Southeast Missouri.

INDEX OF ADVERTISERS

Editorial Excellence . . .

Croplife is proud of the seasoned and experienced staff of business journalists assembled to plan and direct the publication of each issue of this new weekly *news*paper for the agricultural chemical industry.

EDITOR

LAWRENCE A. LONG, top editorial name in the farm chemical industry, is editor of Croplife with 20 years of editorial achievement behind him. He has had seven years of experience as editor of a monthly magazine in the agricultural chemical industry. With a combination of insight into and an understanding of the farm chemical industry and an extensive background of news work, Mr. Long oversees Croplife's widespread reporting job which brings news to the industry while it is still news. His familiarity with the industry also is invaluable in the guiding of Croplife's service program.

Lawrence A. Long

Donald Neth

MANAGING EDITOR

DONALD NETH, managing editor of Croplife, had five years of newspaper experience in the agricultural community before joining the staff of Miller Publishing Co. He has intimate first-hand knowledge of the growing importance of the use of fertilizers and agricultural chemicals in the management of efficient farming operations. For more than a year and a half he was in charge of the extensive research on the agricultural chemical industry undertaken by Croplife in preparation for its launching and he now is responsible for the day-to-day editorial operations of the weekly newspaper.

PLUS FULL-TIME STAFF— Backing up these specialized editors is a staff of newsmen working in Washington, New York, Chicago, Kansas City and Minneapolis, supplemented by 100 correspondents in other key cities. Industry news is gathered, sifted and reported with accuracy bred of an 80-year publishing tradition in the business journal field. A modern network of teletype communication links all Croplife offices permitting last-minute news deadlines. Croplife's own complete mechanical and printing plant completes the broad facilities necessary in the production of the weekly industry *news*paper.

WASHINGTON NEWS— Through weekly coverage of the nation's capital, Croplife keeps its readers up to date on events in this vital news center. Croplife's Washington correspondent is John Cipperly, a veteran capital newsman who interprets the Washington scene in terms of its short and long range impact on the industry. In looking behind the government news releases and the surface actions of agencies, Croplife reports on trends and significant behind-the-scenes activities.

RETAIL DEALER FEATURES— One of Croplife's principal editorial functions is to gather, sift and publish news and feature articles designed to make better merchants out of retail dealers of farm chemicals. Under the direction of Emmet J. Hoffman, merchandising editor, material specifically slanted toward the dealer is prepared by a staff that knows the dealer's language. Croplife is the first business paper to give this specialized editorial attention to retail dealers of agricultural chemicals.

MARKET COVERAGE— Coverage of the industry market news is one of Croplife's editorial functions. Supervising this coverage is George Gates, market editor, with several years of experience in this specialized field.

FOREIGN NEWS — Croplife's full-time foreign office with headquarters in Toronto is alert to overseas news developments of interest to the agricultural chemical industry. George E. Swarbreck, Croplife foreign manager, supervises this coverage and also writes a weekly column, "World Report."

The point of all this, to an advertiser, is that Croplife offers a dramatic, new advertising medium to reach the agricultural chemical industry. A seasoned staff of full-time experienced business journalists, plus the complete facilities of a modern publishing company, insures the production of a top-quality publication devoted to service to the industry *weekly*.

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